de maximis, inc.

Cedar Avenue Business Center
103 North Eleventh Avenue
Suite 210
St. Charles, IL 60174
(630) 443-1940
Fax (630) 443-1942

August 8, 2002

VIA PRIORITY MAIL

Mr. Bernard Schorle (HSRL-6)
Waste Management Division
U. S. EPA Region V
77 West Jackson Blvd.
Chicago, IL 60604

Subject: ***Report of Water Quality Conditions, First Quarter 2002***
Marion (Bragg) Landfill, Marion, Indiana

Dear Mr. Schorle:

On behalf of the Marion (Bragg) Group, please find enclosed three (3) copies of the Report of Water Quality Conditions for the first quarter of 2002, prepared by O&M, Inc., for the subject site.

Please contact me at (630) 443-1940 with any questions on the enclosed reports.

Sincerely,
de maximis, inc.

Gary E. Parker

Enclosures

cc: Resa Ramsey, IDEM (cover plus one copy)
John Hanson, Esq., Beveridge & Diamond, P.C. (cover plus one copy)
Rick Meyers, United Technologies (cover plus one copy)
Dan Garrigan, O&M Inc. (cover via facsimile only)

FILE: 3004-18\1stqrt_2002rpt.doc

REPORT OF

WATER QUALITY CONDITIONS
FIRST QUARTER 2002
MARION (BRAGG) LANDFILL

MARION, INDIANA

Prepared on Behalf of:

MARION (BRAGG) LANDFILL GROUP

Prepared by:

O & M, Inc.
303 N. Indiana St.
Danville, IN 46122

AUGUST 2002

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1.0 INTRODUCTION

This report presents water level data, field water quality measurements and results of laboratory analyses for water samples collected at the Marion (Bragg) Landfill site during the semi-annual monitoring event conducted in March 2002. The monitoring program was designed to document the effectiveness of the landfill cap and is described in detail in the Remedial Action Plan (RAP) (Environmental Resources Management (ERM), 1989, Remedial Action Plan, Marion (Bragg) Landfill Site, Marion, Indiana) and Remedial Design/Remedial Action (RD/RA) Work Plan (Environmental Resources Management, 1989, Remedial Design/Remedial Action Work Plan, Marion (Bragg) Landfill Site, Marion, Indiana).

This sampling event continues to implement a condensed monitoring program after the U.S. Environmental Protection Agency (USEPA) issued a no-further-action Record of Decision for this site. Over Eleven (11) years of monitoring data had been collected, since the start of the monitoring program in January 1990.

With concurrence of the USEPA, the number of sampling locations and parameters has been reduced. Monitoring has been reduced to the following locations: for ground water, MB-1, MB-2, MB-5, MB-6, MB-7, MB-8, MB-9, and MB-10, and for surface water, PW-1, SW-1, SW-5, and SW-6.

The sampling program consisted of sampling the on-site monitoring wells (MB-1, -2, and -5 through -10), the on-site pond (PW-1), the Mississinewa River (SW-1 and SW-5), and Lugar Creek (SW-6) for the Target Compound List (TCL) semi-volatiles, Target Analyte List (TAL) metals (dissolved fraction), and the project specific indicator parameters, total suspended solids (TSS), ammonia-nitrogen (NH_3-N), chemical oxygen demand (COD), and chlorides (Cl). Selected locations of MB-1, MB-2, and SW-1 are sampled for Target Compound List (TCL) volatiles. These parameters and locations

are sampled two (2) times per year. Field parameters (temperature, pH, specific conductance, and dissolved oxygen) are collected at each of the stated sampling locations.

Water quality sampling at the Marion (Bragg) Landfill for the referenced period was performed on March 19th and 20th, 2002. All sampling and analyses were conducted in compliance with the requirements specified in the RD/RA Work Plan (ERM, 1989) and Quality Assurance Project Plan (ERM, 1990, Quality Assurance Project Plan, Remedial Design/Remedial Action, Monitoring and Additional Studies at the Marion (Bragg) Landfill Site, Marion, Indiana).

Copies of the chain-of-custody forms are included in Appendix A and the data validation report is included in Appendix B. Questions regarding specific analytes, concentrations, or qualifiers are addressed in the data validation report.

2.0 SITE CONDITIONS

Sampling event data is presented in attached Tables 1 through 12 and Figures 1 through 7. Review of that data indicates:

- The interpreted groundwater flow directions are the same as presented in previous reports.

- The water levels in wells, ponds, and river continue to follow seasonal trends (Figures 4 to 7).

- No methane was detected at any site monitoring locations.

- Calculated concentrations of un-ionized ammonia exceeded the chronic aquatic criteria (CAC) in groundwater samples at downgradient locations, MB-2, MB-6, MB-7, and MB-8. (Table 10). However, after applying the mixing calculation, the concentrations were evaluated as being below the CAC (Table 12).

- The TCL volatile, trichloroethene, was detected in the groundwater sample from the on-site monitoring well, MB-1, at a concentration that exceeds the drinking water Maximum Contaminant Levels (MCLs). However, after applying the mixing calculation, the concentrations were evaluated as being below these criteria (Table 12).

- The TAL metals (dissolved), arsenic and iron were detected in groundwater samples from on-site monitoring wells MB-1, MB-2, MB-5, MB-6, MB-7, MB-8 and MB-9 at concentrations which exceeded the appropriate water quality criteria. However, after applying the mixing calculation, the concentrations dropped below the criteria (Table 12).

- The on-site pond staff gauge was missing. O&M inc. will install new staff gauge during the 2nd quarter sampling event.

3.0 COMMENTS

The following general comments are provided regarding sampling procedures, sample documentation, and the data validation report:

- The data validator noted that matrix spike and matrix spike duplicate (MS/MSD) samples should not be recorded on the COC forms as separate samples, but that extra sample volume should be obtained for the analysis. The sample numbering procedures specified in the Quality Assurance Project Plan (QAPP) calls for the use of a suffix added to distinguish additional sample volumes obtained for MS/MSD analysis. This procedure has been used for all sampling events to date and has proven satisfactory. O&M, Inc. will continue to follow the sample numbering and COC procedures specified in the QAPP until instructed otherwise.

FIGURES

Figure 1
Site Location
Marion (Bragg) Landfill

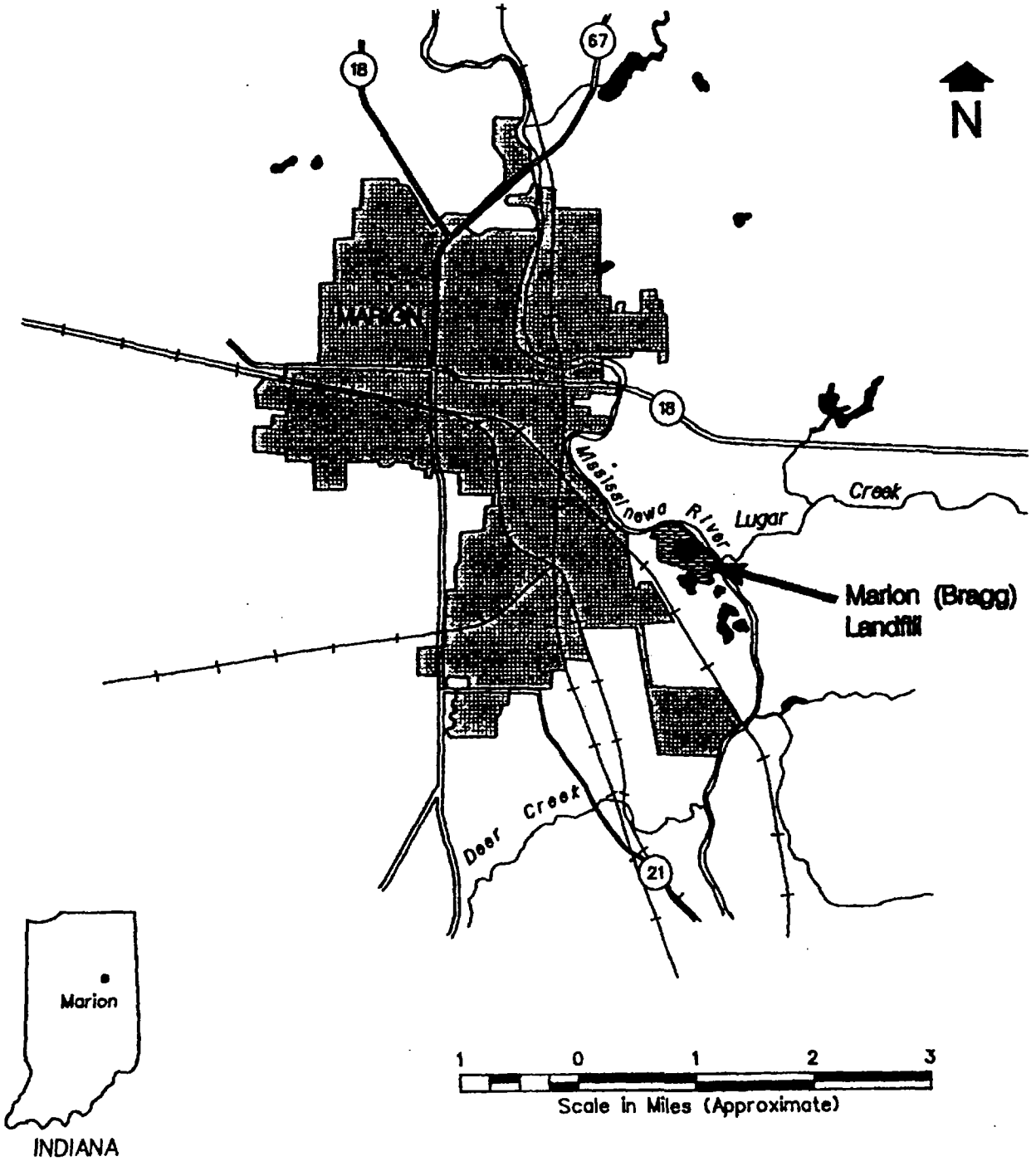


Figure 2
Sampling Locations
Marion (Bragg) Landfill

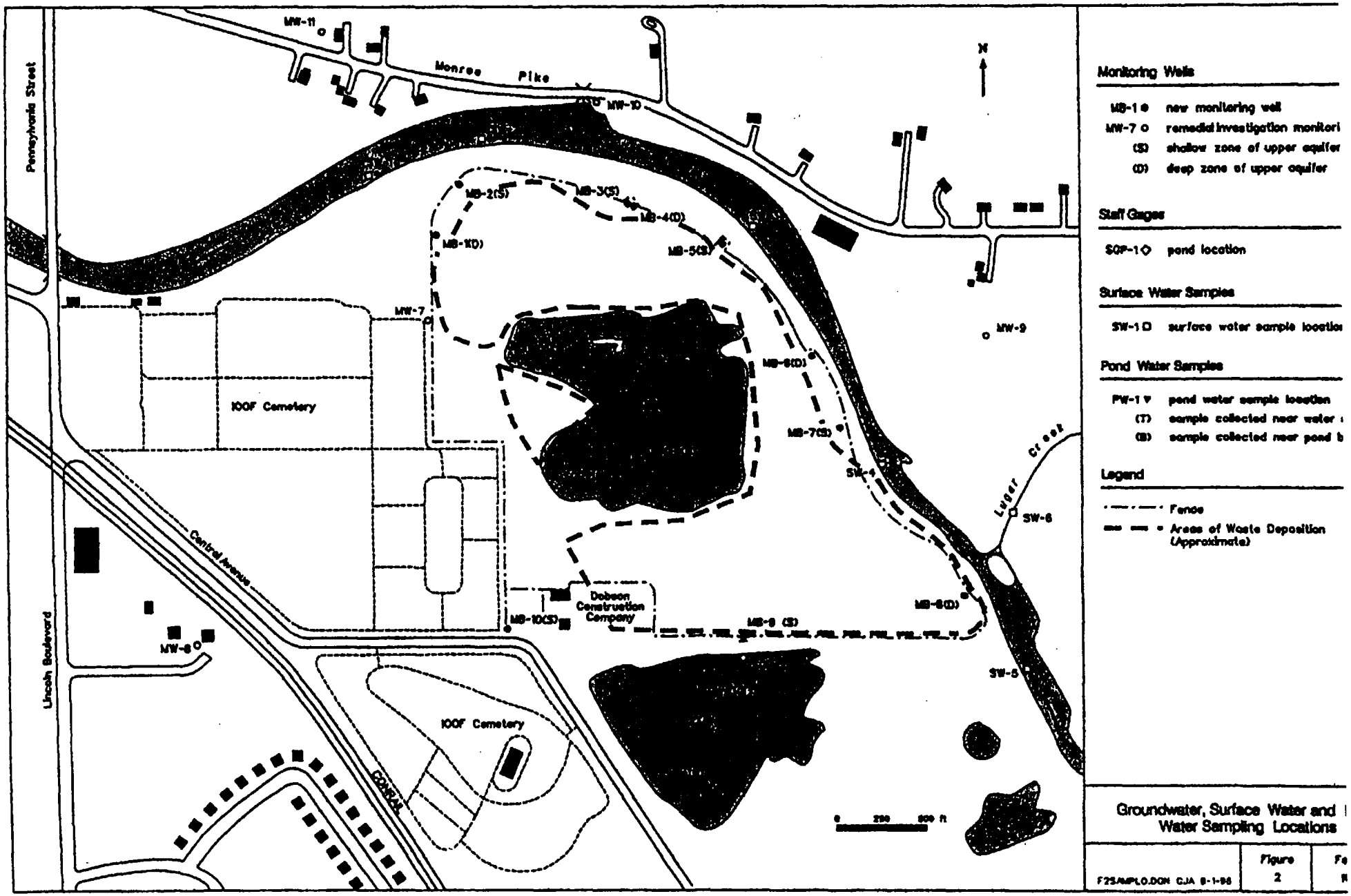


Figure 3
Groundwater Contour Map
Marion (Bragg) Landfill

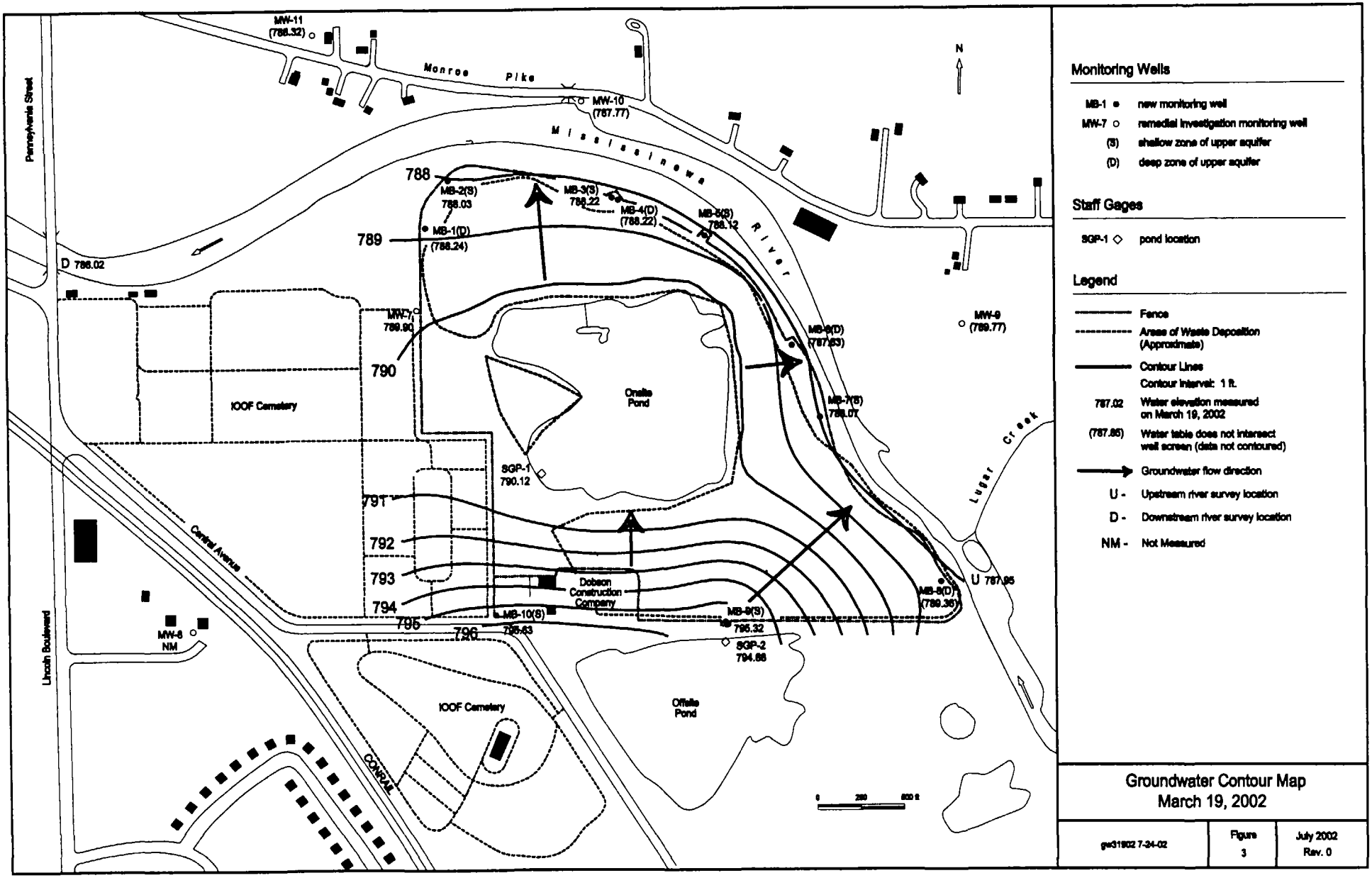


Figure 4. Hydrograph for
Off-site Monitoring Wells

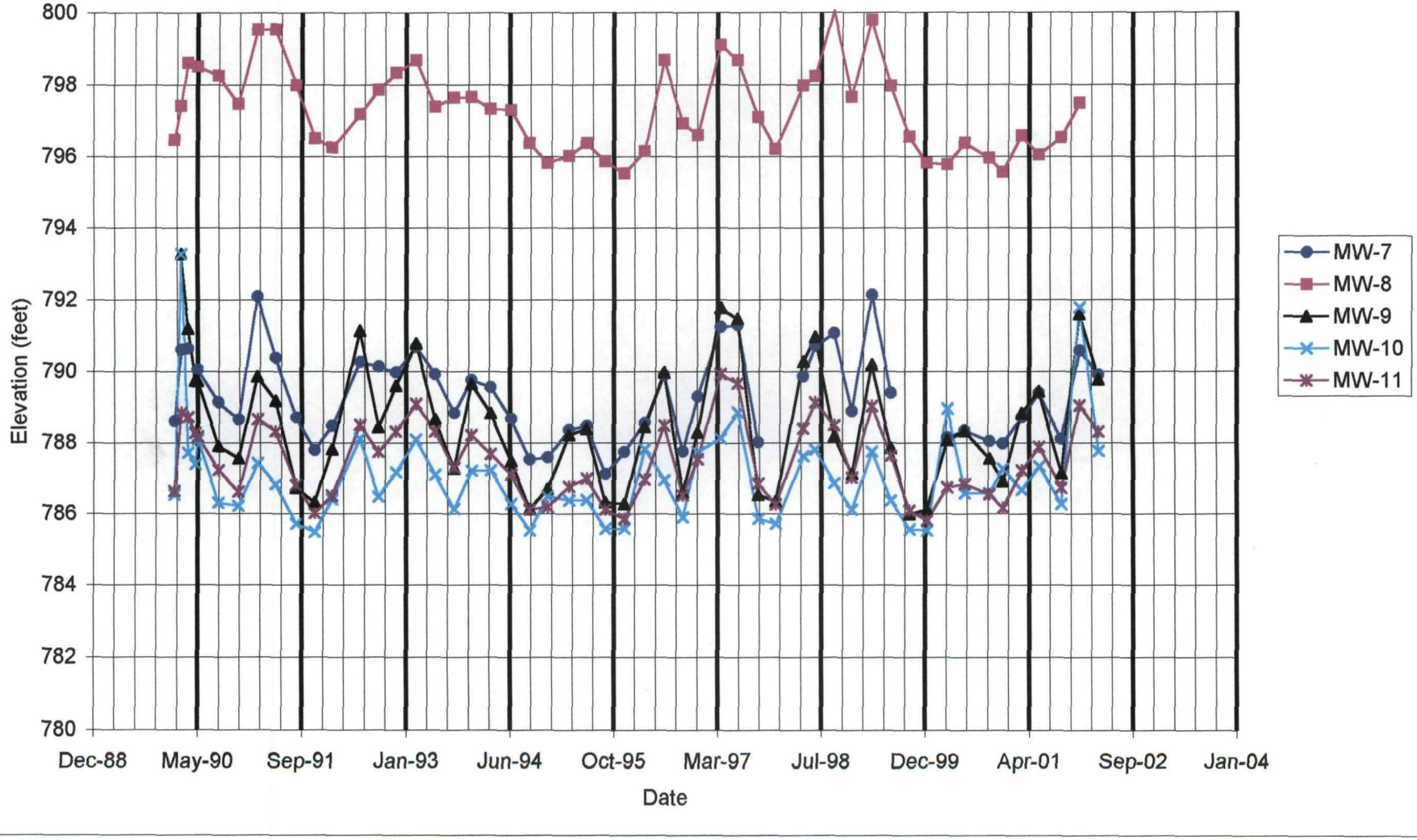


Figure 5. Hydrograph for Shallow, Upper Aquifer Monitoring Wells

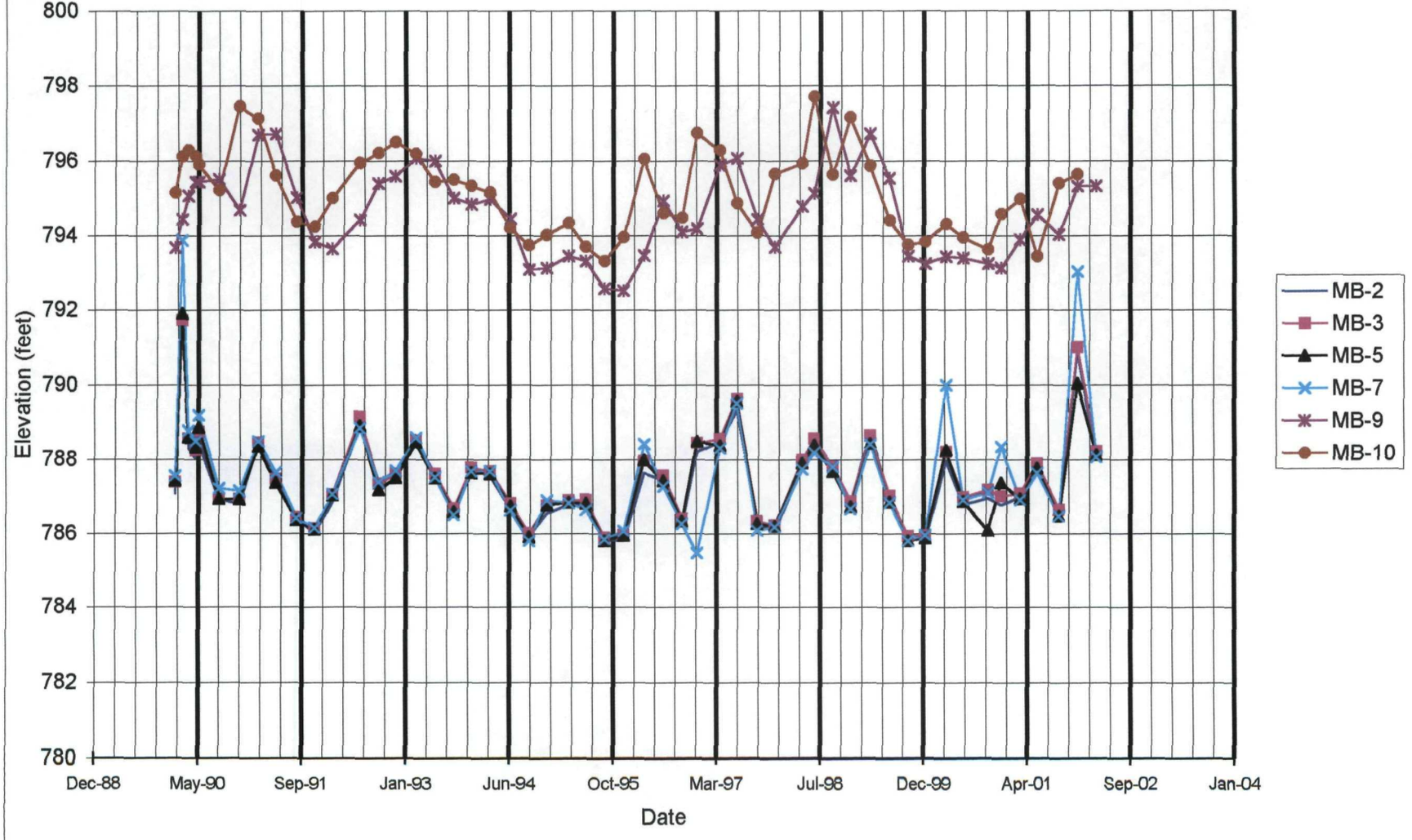


Figure 6. Hydrograph for Deep,
Upper Aquifer Monitoring Wells

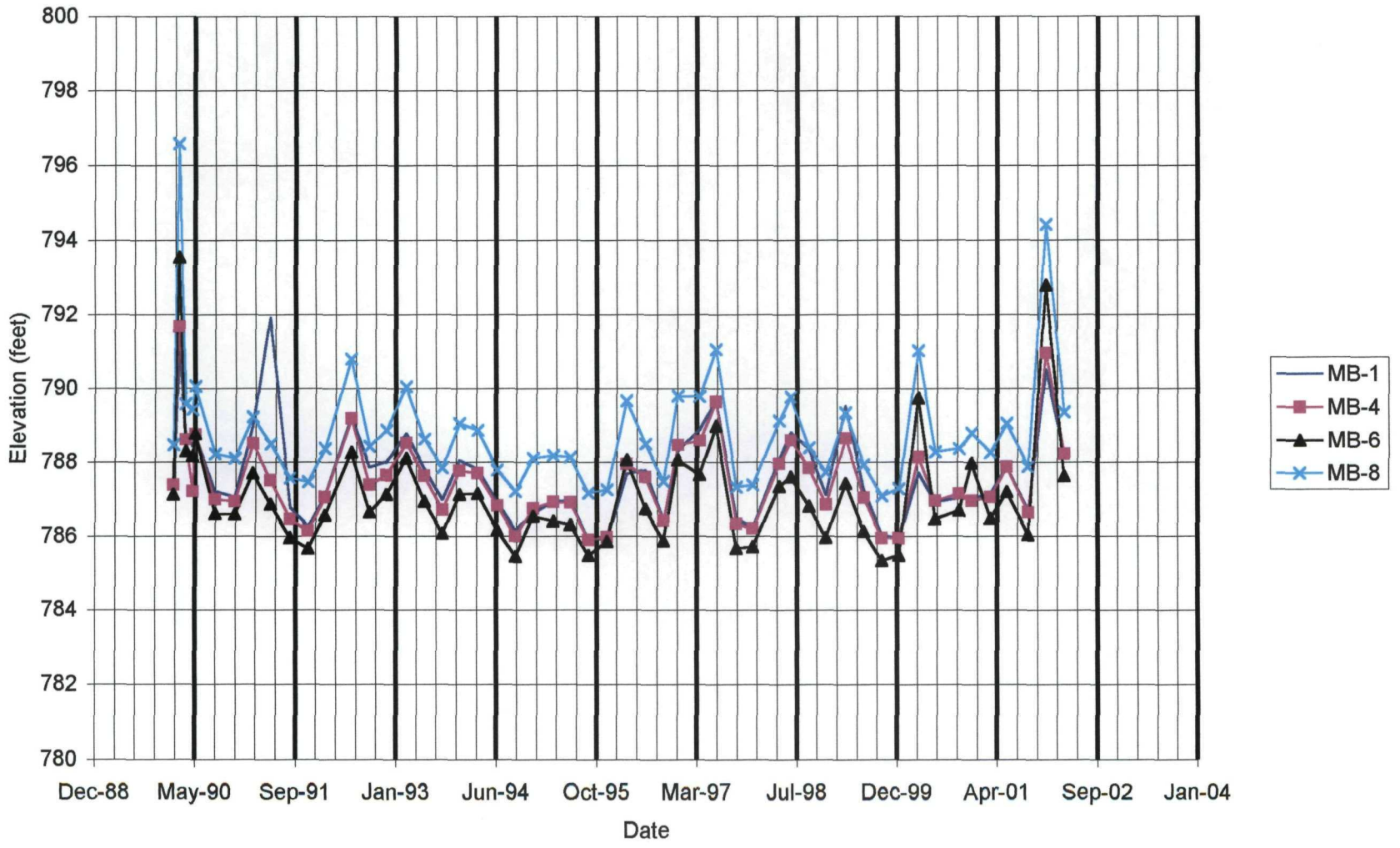
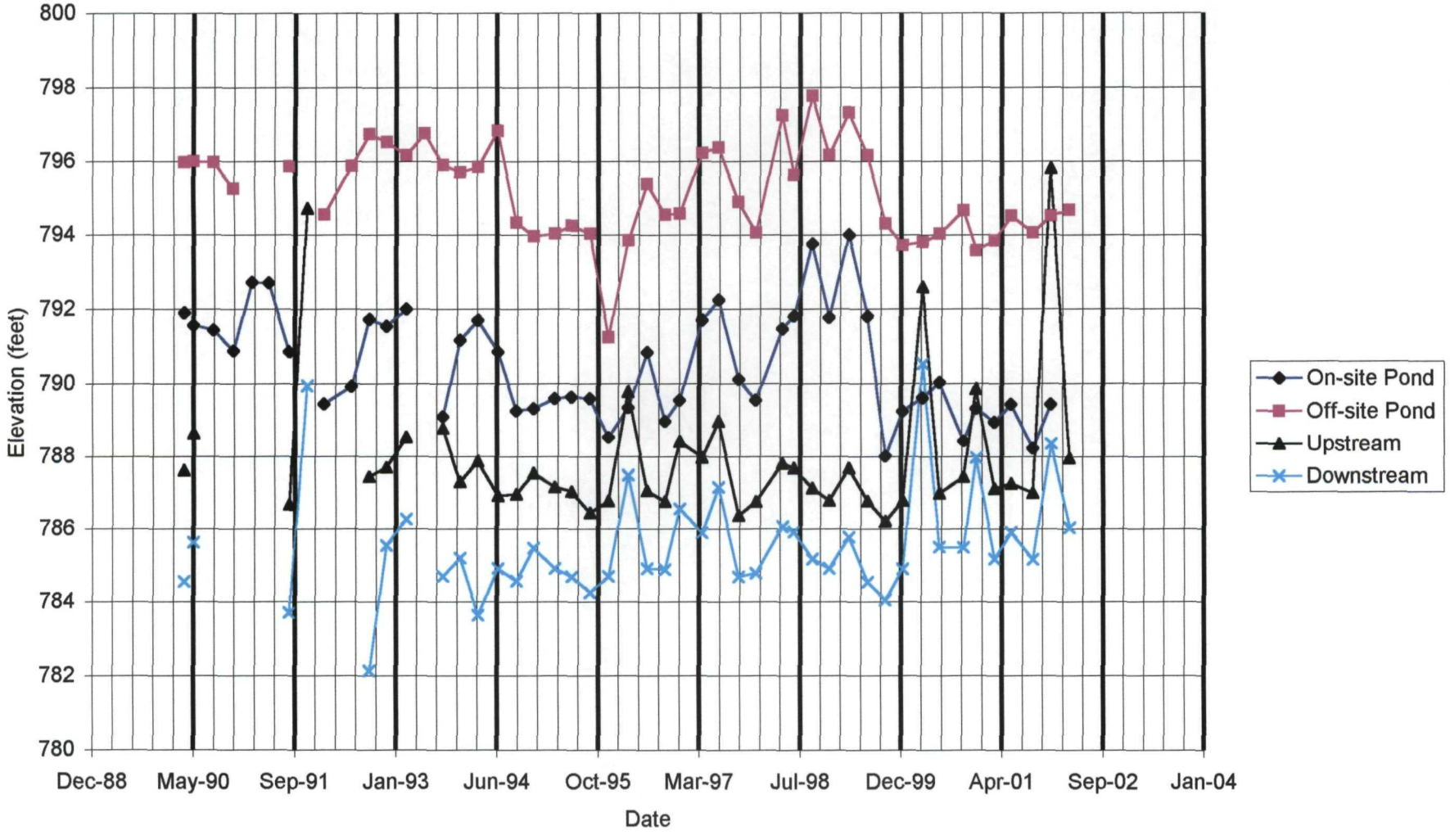


Figure 7. Hydrograph for
Surface Water Locations



TABLES

Table 1 - Continued

SAMPLE SUMMARY MATRIX - MARION (BRAGG) LANDFILL

Matrix	Number of Samples	Number of Trip Blanks*	Number of Field Blanks*	Number of Field Duplicates	Number of Matrix Spike/ Matrix Spike Duplicate Samples **	Total Matrix	Analyses	Container and Preservation	Holding Times
							LABORATORY		
SURFACE WATER (Initial and semiannual sampling. Confirmatory samples shall be taken during the quarter following the sampling event that revealed the presence of a parameter requiring such confirmatory sampling. Sampling is anticipated for 30 years.)	4 (Note 1)	3	1	1	2	9	TCL Volatiles	2-40 ml screw cap vials w/ Teflon-lined septa. HCl to pH < 2. Cool to 4 C.	14 days
							pH Check	1-40 ml screw cap vials w/ Teflon-lined septa. HCl to pH < 2. Cool to 4 C.	28 days
							TCL BNAs	2-1 liter amber glass w/ Teflon lined enclosure. Cool to 4 C.	7 days until extraction, 40 days after extraction.
							Dissolved TAL Metals	Dissolved samples will be field filtered through a 0.45 micron filter prior to preservation. 1-liter plastic HNO3 to pH <2. Cool to 4C.	
							TSS, Chloride, NH3-N	1-liter plastic, Cool to 4C	3 days (TSS) 28 days (Cl) 28 days(NH3-N)
							COD	1-250 ml plastic H2SO4 to pH <2. Cool to 4C.	28 days
							FIELD		
							pH, Conductivity D.O. and Temp.	Measure in field to stability before collection.	In field.

Note 1: The on-site pond location of PW-2, off-site pond locations of PW-3 and PW-4, and river locations of SW-2, -3, and -4 were not sampled this quarter as part of an interim reduced monitored program following a "No further action" ROD.

* - Trip blanks are required for volatile organic analysis at a frequency of one per cooler shipped containing volatile organic analysis.

** - Triple the volume for groundwater and surface water locations will be collected for matrix spike/matrix spike duplicate analyses at a frequency of one per 20 investigative samples. Inorganic analyses will include a single matrix spike and a laboratory duplicate vs. matrix spike duplicate.

Table 1

SAMPLE SUMMARY MATRIX - MARION (BRAGG) LANDFILL

Matrix	Number of Samples	Number of Trip Blanks*	Number of Field Blanks*	Number of Field Duplicates	Number of Matrix Spike/ Matrix Spike Duplicate Samples **	Total Matrix	Analyses	Container and Preservation	Holding Times
							LABORATORY		
GROUND WATER (Initial and semiannual sampling. Confirmatory samples shall be taken during the quarter following the sampling event that revealed the presence of a parameter requiring such confirmatory sampling. Sampling is anticipated for 30 years.)	8 (Note 1)	3	1	1	2	13	TCL Volatiles	2-40 ml screw cap vials w/ Teflon-lined septa. HCl to pH < 2. Cool to 4 C.	14 days
							pH Check	1-40 ml screw cap vials w/ Teflon-lined septa. HCl to pH < 2. Cool to 4 C.	28 days
							TCL BNAs	2-1 liter amber glass w/ Teflon lined enclosure. Cool to 4 C.	7 days until extraction, 40 days after extraction.
							Dissolved TAL Metals	Dissolved samples will be field filtered through a 0.45 micron filter prior to preservation. 1-liter plastic HNO3 to pH <2. Cool to 4C.	
							TSS, Chloride, NH3-N	1-liter plastic, Cool to 4C	3 days (TSS) 28 days (Cl) 28 days(NH3-N)
							COD	1-250 ml plastic H2SO4 to pH <2. Cool to 4C	28 days
							FIELD		
							pH, Conductivity D.O. and Temp.	Measure in field to stability before collection.	In field.

Note 1: Wells MB-3 and MB-4 were not sampled this quarter as part of an interim reduced monitored program following a "No further action" ROD.

* - Trip blanks are required for volatile organic analysis at a frequency of one per cooler shipped containing volatile organic analysis.

** - Triple the volume for groundwater and surface water locations will be collected for matrix spike/matrix spike duplicate analyses at a frequency of one per 20 investigative samples. Inorganic analyses will include a single matrix spike and a laboratory duplicate vs. matrix spike duplicate.

TABLE 2: WATER LEVEL AND METHANE MONITORING DATA, MARION (BRAGG) LANDFILL, MARCH 19, 2002

Monitoring Location	Top of Casing Elevation (ftamsl)	Stickup (ft)	Ground Surface Elevation (ftamsl)	Methane Concentration (%)	Water Level (ftbtoc)	Water Elevation (ftamsl)
MB-1	799.57	2.50	797.07	0.0	11.33	788.24
MB-2	801.75	2.80	798.95	0.0	13.72	788.03
MB-3	806.15	2.70	803.45	0.0	17.93	788.22
MB-4	805.96	2.60	803.36	0.0	17.74	788.22
MB-5	806.87	3.00	803.87	0.0	18.75	788.12
MB-6	803.58	3.50	800.08	0.0	15.95	787.63
MB-7	812.73	3.00	809.66	0.0	24.66	788.07
MB-8	810.73	3.00	807.73	0.0	21.37	789.36
MB-9	814.73	2.80	811.93	0.0	19.41	795.32
MB-10	822.36	3.10	819.26	0.0	26.72	795.63
MW-7	802.36	2.82	799.54	0.0	12.46	789.90
MW-8	810.87	3.08	807.79	NM	NM	NM
MW-9	806.04	2.57	803.47	0.0	16.27	789.77
MW-10	803.17	2.27	800.90	0.0	15.40	787.77
MW-11	811.09	2.83	808.26	0.0	22.77	788.32
Staff Gauges	**Top of Staff Gauge Elevation**				**Distance Below Top of Staff Gauge (1)**	
SGP-1 (4)	792.92	NA	NA	NM	NM	NM
SGP-2	798.16	NA	NA	NM	3.48	794.68
River Elevation	**Benchmark Elevation**				**Surveyed Distance**	
Upstream location (2)	810.73	NA	NA	NM	22.78	787.95
Downstream location (3)	796.94	NA	NA	NM	10.92	786.02

Notes:

Stickup - Measured distance between the ground surface and the top of casing

ftamsl - feet above mean sea level

ftbtoc - feet below top of casing. For staff gauges, value presented is measurement (in feet) below level of staff gauge.

(1) Pond water level measured from surveyed top of staff gauge down to pond water.

(2) Elevations determined by surveying to known benchmark elevations; benchmark for upstream location MB-8 top of casing.

(3) Elevations determined by surveying to known benchmark elevations; benchmark for downstream location is concrete spillway on east side of McFeeley Bridge.

(4) On-site pond staff missing. O&M Inc. will reinstalled and resurveyed during the second quarter sampling event.

SGP-1 - On-Site Pond

SGP-2 - Off-Site Pond

NM - Not Measured

NA - Not Applicable

TABLE 3: *FIELD WATER QUALITY MEASUREMENTS CONDUCTED DURING WELL PURGING, MARCH 2002*

Well I.D.	Total Depth (ft)	Approx Stickup (ft)	Depth to Water (ftbtoc)	Casing Volume (gal)		Date	Volume Pumped (gal)	pH	Temp (C)	Specific Conductance (umhos/cm) (1)	Specific Conductance (umhos/cm) (2)	Dissolved Oxygen (mg/L)	Conversion Factor (K)
MB-1	37	2.50	11.33	4.16		03/19/02							
							4.0	7.1	9.5	600	861	2.4	0.99
							8.0	7.2	9.0	600	874	2.5	0.99
							12.5	7.2	9.5	600	861	2.3	0.99
MB-2	18	2.80	13.72	0.69		03/19/02							
							0.5	6.8	10.0	800	1131	2.2	0.99
							1.0	6.8	9.0	800	1165	2.3	0.99
							2.0	6.7	10.0	800	1131	2.3	0.99
MB-3	24	2.70	17.93	0.98	*		(Well removed from water quality monitoring program as part of a condensed monitoring program following a no-further-action Record of Decision.)						
MB-4	35	2.60	17.74	2.80	*		(Well removed from water quality monitoring program as part of a condensed monitoring program following a no-further-action Re·n Record of Decision.)						
MB-5	24	3.00	18.75	0.85		03/19/02							
							1.0	7.0	11.0	800	1100	6.2	0.99
							1.5	7.0	12.0	800	1070	3.3	0.99
							2.5	7.0	12.0	800	1070	3.5	0.99
							3.0	6.8	12.0	790	1057	3.2	0.99
MB-6	28	3.50	15.95	1.95		03/19/02							
							2.0	6.7	11.0	750	1031	2.3	0.99
							4.0	6.8	12.0	750	1003	2.1	0.99
							6.0	6.8	12.0	750	1003	2.0	0.99
MB-7	32	3.0	24.66	1.19		03/19/02							
							1.0	6.9	11.0	700	963	2.1	0.99
							2.0	7.0	12.0	700	936	2.0	0.99
							3.5	7.0	12.0	700	936	2.4	0.99
MB-8	36	3.0	21.37	2.37		03/19/02							
							2.5	7.1	10.0	1000	1414	2.2	0.99
							5.0	7.2	10.0	1000	1414	2.1	0.99
							7.0	7.2	10.5	1000	1394	2.1	0.99

TABLE 3: FIELD WATER QUALITY MEASUREMENTS CONDUCTED DURING WELL PURGING, MARCH 2002

Well I.D.	Total Depth (ft)	Approx Stickup (ft)	Depth to Water (ftbtoc)	Casing Volume (gal)	Date	Volume Pumped (gal)	pH	Temp (C)	Specific Conductance (umhos/cm) (1)	Specific Conductance (umhos/cm) (2)	Dissolved Oxygen (mg/L)	Conversion Factor (K)
MB-9	29	2.80	19.41	1.55	03/19/02							
						2.0	7.5	11.0	320	440	3.4	0.99
						3.5	7.7	11.0	320	440	3.3	0.99
						5.0	7.7	11.0	300	413	3.1	0.99
MB-10	30	3.10	26.95	0.49	03/19/02							
						0.5	7.1	11.0	550	756	5.6	0.99
						1.0	7.2	11.0	520	715	5.7	0.99
						1.5	7.3	11.0	550	756	6.0	0.99

Notes:
NA - Not Applicable
ftbtoc - feet below top of case
stickup - measured distance between the ground surface and the top of casing
(1) - Field measured conductivity.
(2) - Specific conductance value corrected to 25 C and adjusted using conversion factor (K).

Table 4

Data Qualifier Definitions

Qualifier	Description
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated value represents its approximate concentration
UJ	The analyte was not detected about the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Table 5
Marion (Bragg) Landfill
Sample Designation Key
First Quarter 2002 Sampling Event
March 2001

Sample Designation	Sample Location	Parameters	Date Collected
Ground Water			
GW01CJ	MB-10	TSS, Cl^-, COD, NH_3-N, Dissolved metals, SVOCs	03/20/02
GW02CJ	MB-9	TSS, Cl^-, COD, NH_3-N, Dissolved metals, SVOCs	03/20/02
GW03CJ	MB-5	TSS, Cl^-, COD, NH_3-N, Dissolved metals, SVOCs	03/20/02
GW04CJ	MB-6	TSS, Cl^-, COD, NH_3-N, Dissolved metals, SVOCs	03/20/02
GW05CJ	MB-7	TSS, Cl^-, COD, NH_3-N, Dissolved metals, SVOCs	03/20/02
GW06CJ	MB-8	TSS, Cl^-, COD, NH_3-N, Dissolved metals, SVOCs	03/20/02
GW07CJ	MB-2	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/20/02

Table 5 Continued

Sample Designation	Sample Location	Parameters	Date Collected
GW08CJ	MB-1	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/20/02
GW08DPCJ	MB-1	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/20/02
GW08MSCJ	MB-1	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/20/02
GW08MSDCJ	MB-1	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/20/02
GW09FBCJ	Field Blank	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/19/02
GW10TBCJ	Trip Blank	VOCs	03/19/02
Pond Water			
PW01CJ	PW-1 (On-site shallow)	TSS, Cl^-, COD, NH_3-N, Dissolved metals, SVOCs	03/19/02

Table 5 Continued

Sample Designation	Sample Location	Parameters	Date Collected
River Water			
SW01CJ	SW-1 (Downstream)	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/19/02
SW01DPCJ	SW-1 (Downstream)	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/19/02
SW01MSCJ	SW-1 (Downstream)	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/19/02
SW01MSDCJ	SW-1 (Downstream)	TSS, Cl^-, COD, NH_3-N, Dissolved metals, VOCs, SVOCs	03/19/02
SW02CJ	SW-5 (Upstream)	TSS, Cl^-, COD, NH_3-N, Dissolved metals, SVOCs	03/19/02
SW03CJ	SW-6 (Lugar Creek)	TSS, Cl^-, COD, NH_3-N, Dissolved metals, SVOCs	03/19/02
SW04TBCJ	Trip Blank	VOCs	03/19/02

Table 6: GROUNDWATER CHEMISTRY DATA, MARCH 2002

MONITORING WELL LOCATION IN AQUIFER	MB-1 BOTTOM	MB-2 TOP	MB-5 TOP	MB-6 BOTTOM	MB-7 TOP	MB-8 BOTTOM	MB-9 TOP	MB-10 TOP	DUPLICATE (MB-1)
TCL VOLATILES (ug/L)									
Acetone	10 U	10 U	NA	NA	NA	NA	NA	NA	10 U
Benzene	10 U	10 U	NA	NA	NA	NA	NA	NA	10 U
Chlorobenzene	10 U	0.8 J	NA	NA	NA	NA	NA	NA	10 U
Total 1,2-Dichloroethene	9 J	0.7 J	NA	NA	NA	NA	NA	NA	8 J
Trichloroethene	47	10 U	NA	NA	NA	NA	NA	NA	51
Vinyl Chloride	10 U	0.8 J	NA	NA	NA	NA	NA	NA	10 U
VOLATILE TENTATIVELY IDENTITFIED COMPOUNDS (Retention Time) (1)									
None detected									
TCL SEMIVOLATILES (ug/L)									
bis(2-Ethylhexyl)phthalate	9 U	10 U	10 U	10 U	10 U	23 U	9 U	9 U	9 U
Hexachlorocyclopentadiene	9 U	10 U	10 U	10 U	10 U	9 U	9 U	9 U	9 U
2,4-Dinitrophenol	22 U	24 U	24 U	24 UJ	24 U	23 U	23 U	23 U	23 U
SEMIVOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time) (1)									
Unknown		8 J	2 J	13 J	5 J	134 J			
Unknown acid ester					4 J	5 J			
2(3H)-Benzothiazolone				10 NJ					
1,4,5,6,7,7-hexachloro-bicyclo(2-2-1)hept-5-ene-2,3-		15 NJ							
Sulfur		3 J	3 J						

Table 6: GROUNDWATER CHEMISTRY DATA, MARCH 2002

MONITORING WELL LOCATION IN AQUIFER	MB-1 BOTTOM	MB-2 TOP	MB-5 TOP	MB-6 BOTTOM	MB-7 TOP	MB-8 BOTTOM	MB-9 TOP	MB-10 TOP	DUPLICATE (2) (MB-1)
DISSOLVED TAL METALS (ug/L)									
Aluminum	71 U	53.2 U	44.0 U	56.8 U	59.4 U	44 U	96.6 U	69.9 U	44 U
Antimony	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Arsenic	6.6	35.8	6.0	167	72.7	132	8.7	1.7 U	7.5
Barium	215	612	340	533	690	309	70.8	98.1	225
Beryllium	0.30 U	0.90 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Cadmium	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Calcium	130000	195000	156000	164000	118000	128000	63700	120000	138000
Chromium	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U
Cobalt	50.0 U	2.0 J	2.0 J	2.1 J	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Copper	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Iron	1700	14800	1690	23000	9980	13000	2280	23.8 U	2110
Lead	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Magnesium	36200	42300	70300	42200	43300	58600	23400	37500	38300
Manganese	954	370	224	99	123	150	557	1.1 U	1020
Mercury	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ
Nickel	3.4	3.7	3.2	16.9	2.6	3.7	1.1 J	1.0 U	2.9
Potassium	2710 J	14200 J	3010 J	12600 J	18900 J	27700 J	1430 J	2530 J	2880 J
Selenium	5 U	1.9 U	1.9 U	1.9 U	1.9 U	2.8 J	1.9 U	1.9 U	1.9 U
Silver	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Sodium	16800	19200	22600	22000	42400	117000	11600	16800	17900
Thallium	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Vanadium	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Zinc	R	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	R
INDICATOR PARAMETERS (mg/L)									
Ammonia-Nitrogen	0.10 U	8.2	0.62	3.4	7.4	4.5	0.47	0.10 U	0.10 U
Chemical Oxygen Demand	10.0 UJ	25 J	60.0 J	35.0 J	21.0 J	84 J	20.0 J	13.0 J	10.0 UJ
Chloride	21.2	11.1	17.7	14.5	23.1	23.8	12.5	21.4	23.7
Total Suspended Solids	17 J	83.2 J	78.8 J	2620 J	138.0 J	229 J	146 J	132 J	222.0 J

Notes:

NA - Not analyzed; parameter removed from water quality monitoring program as part of a condensed monitoring program following a no-further-action Record of Decision.
Sampling locations, MB-3 and MB-4, removed from water quality monitoring program as part of a condensed monitoring program following a no-further-action Record of Decision.

(1) Unknown Tentatively Identified Compounds (TICs) are summed or totaled by the number of unknown TICs and by the concentration of unknown TICs. TICs for which a compound class (e.g., unknown phtalate) or individual compound (e.g., 1H-Benzotriazole) are identified, those compounds are listed separately with concentration and data qualifier and are not included in the total number or total concentration. The unknown TICs were totaled to provide condensed summary information in the data table. Any questions regarding specific unknown TICs can be investigated in the data validation report.

Table 7: POND WATER CHEMISTRY DATA, MARCH 2002

SAMPLING LOCATION	OFFSITE POND	OFFSITE POND	ONSITE POND	ONSITE POND
LOCATION IN MATRIX	BOTTOM (PW-4)	TOP (PW-3)	BOTTOM (PW-2)	TOP (PW-1)
TCL VOLATILES (ug/L)				
NA	NA	NA	NA	NA
VOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time)				
NA	NA	NA	NA	NA
TCL SEMIVOLATILES (ug/L)				
2,4-Dinitrophenol				22 UJ
SEMIVOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time) (1)				
Unknown	NA	NA	NA	2 J
DISSOLVED TAL METALS (ug/L)				
Aluminum	NA	NA	NA	44.0 U
Antimony	NA	NA	NA	1.5 U
Arsenic	NA	NA	NA	1.8 J
Barium	NA	NA	NA	166
Beryllium	NA	NA	NA	0.30 U
Cadmium	NA	NA	NA	0.30 U
Calcium	NA	NA	NA	63600
Chromium	NA	NA	NA	0.90 U
Cobalt	NA	NA	NA	2.00 U
Copper	NA	NA	NA	1.9 J
Iron	NA	NA	NA	23.6 U
Lead	NA	NA	NA	1.6 U
Magnesium	NA	NA	NA	29200
Manganese	NA	NA	NA	2.1
Mercury	NA	NA	NA	0.10 UJ
Nickel	NA	NA	NA	3.2
Potassium	NA	NA	NA	4660 J
Selenium	NA	NA	NA	1.9 U
Silver	NA	NA	NA	0.60 UJ
Sodium	NA	NA	NA	17100
Thallium	NA	NA	NA	3.0 U
Vanadium	NA	NA	NA	1.7 U
Zinc	NA	NA	NA	4.60 U
INDICATOR PARAMETERS (mg/L)				
Ammonia-Nitrogen	NA	NA	NA	0.25 U
Chemical Oxygen Demand	NA	NA	NA	19 J
Chloride	NA	NA	NA	16.4
Total Suspended Solids	NA	NA	NA	11.4 J
FIELD PARAMETERS				
Temperature (C)	NA	NA	NA	8.0
pH	NA	NA	NA	8.01
Conductivity (umhos/cm) (2)	NA	NA	NA	360
Conductivity (umhos/cm) (3)	NA	NA	NA	548
Dissolved Oxygen (mg/L)	NA	NA	NA	10.9

Notes:

NA - Not analyzed; parameter removed from water quality monitoring program as part of a condensed monitoring program following a no-further-action Record of Decision. Sampling locations, PW-2, PW-3, and PW-4, removed from water quality monitoring program as part of a condensed monitoring program *following a no-further-action Record of Decision.*

ND - Not Detected

(1) Unknown Tentatively Identified Compounds (TICs) are summed or totaled by the number of unknown TICs and by the concentration of unknown TICs. TICs for which a compound class (e.g., unknown phtalate) or individual compound (e.g., 1H-Benzotriazole) are identified, those compounds are listed separately with concentration and data qualifier and are not included in the total number or total concentration. The unknown TICs were totaled to provide condensed summary information in the data table. Any questions regarding specific unknown TICs can be investigated in the data validation report.

(2) - field measured specific conductivity at ambient temperature

(3) - specific conductivity corrected to 25 degrees C.

Table 8: SURFACE WATER CHEMISTRY DATA, MARCH 2002

LOCATION	SW-1 Downstream	SW-2 Adjacent	SW-3 Adjacent	SW-4 Adjacent	SW-5 Upstream	SW-6 Lugar Creek	DUPLICATE (SW-1)
TCL VOLATILES (ug/L)							
		NA	NA	NA	NA	NA	
VOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time)							
		NA	NA	NA	NA	NA	
TCL SEMIVOLATILES (ug/L)							
2,4-Dinitrophenol	ND	NA	NA	NA	24 UJ	22 UJ	23 UJ
SEMIVOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time) (1)							
DISSOLVED TAL METALS (ug/L)							
Aluminum	44 U	NA	NA	NA	54.7 U	56.6 U	44 U
Antimony	1.5 U	NA	NA	NA	1.5 U	1.5 U	2 U
Arsenic	1.7 U	NA	NA	NA	1.7 U	1.7 U	1.7 U
Barium	72.6	NA	NA	NA	70.2	67.9	66.7
Beryllium	0.30 U	NA	NA	NA	0.30 U	0.30 U	0.30 U
Cadmium	0.30 U	NA	NA	NA	0.30 U	0.30 U	0.30 U
Calcium	101000	NA	NA	NA	97900	94600	88400
Chromium	0.90 U	NA	NA	NA	0.90 U	0.90 U	0.90 U
Cobalt	2.0 U	NA	NA	NA	2.0 U	2.0 U	2.0 U
Copper	1.8 U	NA	NA	NA	1.8 U	1.8 U	25.0 U
Iron	23.8 U	NA	NA	NA	23.8 U	23.8 U	23.8 U
Lead	1.6 U	NA	NA	NA	1.6 U	1.6 U	1.6 U
Magnesium	34300	NA	NA	NA	33900	32200	30100
Manganese	22.4	NA	NA	NA	18.2	18.6	21.5
Mercury	0.10 UJ	NA	NA	NA	0.10 UJ	0.10 UJ	0.10 UJ
Nickel	1.6 J	NA	NA	NA	2.5	1.4 J	2.2
Potassium	2480 J	NA	NA	NA	2430 J	2360 J	2180 J
Selenium	1.9 U	NA	NA	NA	2.2 J	1.9 U	5.0 U
Silver	0.50 U	NA	NA	NA	0.50 UJ	0.50 UJ	0.50 U
Sodium	17200	NA	NA	NA	16800	16300	15100
Thallium	3.0 U	NA	NA	NA	3.0 U	3.0 U	3.0 U
Vanadium	1.7 U	NA	NA	NA	1.7 U	1.7 U	1.7 U
Zinc	4.6 U	NA	NA	NA	6.4 J	4.6 U	4.6 U
INDICATOR PARAMETERS (mg/L)							
Ammonia-Nitrogen	0.10 U	NA	NA	NA	0.10 U	0.10 U	0.10 U
Chemical Oxygen Demand	12 J	NA	NA	NA	10 J	12 J	10 J
Chloride	27.6	NA	NA	NA	29.2	29.2	28.7
Total Suspended Solids	10 J	NA	NA	NA	6.2 J	10.6 J	11.5 J
FIELD PARAMETERS							
Temperature (C)	7.0	NA	NA	NA	7.0	7.0	7.0
pH	8.18	NA	NA	NA	8.33	8.29	8.18
Conductivity (umhos/cm) (2)	450	NA	NA	NA	430	400	450
Conductivity (umhos/cm) (3)	669	NA	NA	NA	639	595	669
Dissolved Oxygen (mg/L)	11.82	NA	NA	NA	11.97	11.95	11.82

Notes:

NA - Not analyzed; parameter removed from water quality monitoring program as part of a condensed monitoring program following a no-further-action Record of Decision. Sampling locations, SW-2, SW-3, and SW-4, removed from water quality monitoring program as part of a condensed monitoring program following a no-further-action Record of Decision.

NR - Not recorded

ND - Not Detected

(1) Unknown Tentatively Identified Compounds (TICs) are summed or totaled by the number of unknown TICs and by the concentration of unknown TICs. TICs for which a compound class (e.g., unknown phtalate) or individual compound (e.g., 1H-Benzotriazole) are identified, those compounds are listed separately with concentration and data qualifier and are not included in the total number or total concentration. The unknown TICs were totaled to provide condensed summary information in the data table. Any questions regarding specific unknown TICs can be investigated in the data validation report.

(2) - field measured specific conductivity at ambient temperature

(3) - specific conductivity corrected to 25 degrees C.

TABLE 9: WATER QUALITY CRITERIA - UPDATED 2000

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	--		--	
Benzene	5300	E	116	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	--	
1,2-Dichloroethane (total) (1)	--		--		--		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	--	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethene	45000	E	21900	E	807	I	5	E
Vinyl Chloride	--		--		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	--	
Phthalate Esters	940	E	3	E	50000	I	--	
TAL Metals and Cyanide (ug/L)								
Aluminum	--		--		--		--	
Antimony	--		--		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	--		--		--		2000	E
Beryllium	--		--		1.17	I	4	E
Cadmium*	6.7	I	1.8	I	60	+	5	E
Calcium	--		--		--		--	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	--		--		--		--	
Copper* (2)	28	I	18	I	--		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	--		--		--	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	--		--		--		--	
Manganese	--		--		--		--	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	--		--		--		--	
Selenium	130	I	25	I	--		50	E
Silver*	9.2	I	0.12	E	--		50	E
Sodium	--		--		--		--	
Thallium	--		--		48	I	2	E
Vanadium	11000	+	100	+	--		--	
Zinc*	175	I	160	I	--		--	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	--		--	
COD	--		--		--		--	
Chloride	860	I	230	I	--		--	
TSS	--		--		--		--	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
-- Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 10: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, MARCH 2002

Sample Matrix	Well Number	pH	Temp (C)	Total Ammonia in Sample (mg/L)	Calculated Un-Ionized Ammonia (in Sample) (mg/L)*	Calculated Un-Ionized Ammonia Criteria (mg/L)** AAC	Calculated Un-Ionized Ammonia Criteria (mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Ground Water	MB-1	7.3	9.5	0.10 U	0.0002	0.055	0.0074	No	No
	MB-2	6.7	10.0	8.2	0.0084	0.024	0.0022	No	Yes
	MB-5	6.8	12.0	0.62	0.0009	0.033	0.0033	No	No
	MB-6	6.8	12.0	3.4	0.0042	0.028	0.0026	No	Yes
	MB-7	7.0	12.0	7.4	0.0168	0.045	0.0049	No	Yes
	MB-8	7.2	10.5	4.5	0.0132	0.052	0.0064	No	Yes
	MB-9	7.7	11.0	0.47	0.0047	0.095	0.0221	No	No
	MB-10	7.3	11.0	0.10 U	0.0002	0.059	0.0078	No	No
	Duplicate+	7.3	9.5	0.10 U	0.0002	0.055	0.0074	No	No
Pond Water	On-site (S)	8.0	8.0	0.10 U	0.0008	0.094	0.0367	No	No
Surface Water	SW-1	8.2	7.0	0.10 U	0.0011	0.094	0.0506	No	No
	Duplicate++	8.2	7.0	0.10 U	0.0011	0.094	0.0506	No	No
	SW-5	8.3	7.0	0.10 U	0.0015	0.097	0.0714	No	No
	SW-6	8.3	7.0	0.10 U	0.0014	0.096	0.0651	No	No

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001(as revised by Water Quality Criteria and Standards Activity Report, August 1992)

+ - Readings taken from monitoring well MB-1

++ - Readings taken from surface water sample location SW-1.

AAC - Acute Aquatic Criteria

CAC - Chronic Aquatic Criteria

TABLE 11: ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR TAL METALS CONCENTRATIONS DEPENDENT ON HARDNESS, MARCH 2002

Sample Matrix	Sample Location	Hardness (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Cadmium (ug/L)				Chromium (ug/L)				Copper (ug/L)				Lead (ug/L)				Nickel (ug/L)				Silver (ug/L)				Zinc (ug/L)			
					Sample Conc.**		AAC*	CAC*	Sample Conc.**		AAC*	CAC*	Sample Conc.**		AAC*	CAC*	Sample Conc.**		AAC*	CAC*	Sample Conc.**		AAC*	CAC*	Sample Conc.**		AAC*	CAC(1)	Sample Conc.**		AAC*	CAC*
Dissolved Metals																																
Ground Water	MB-1	474.0	130.0	38.2	0.30	U	23	4	0.9	U	8210	740	1.8	U	77	46	1.8	U	582	23	3.4		8290	568	0.50	U	59	R		437	366
	MB-2	661.8	186.0	42.3	0.30	U	33	5	0.9	U	8161	973	1.8	U	106	58	1.8	U	905	35	3.7		7014	780	0.50	U	105	4.6	U	560	525
	MB-5	679.3	158.0	70.3	0.30	U	34	5	0.9	U	8339	994	1.8	U	108	61	1.8	U	936	36	3.2		7173	797	0.50	U	110	4.6	U	583	537
	MB-6	563.7	164.0	42.2	0.30	U	29	5	0.9	U	7386	878	1.8	U	93	53	1.8	U	771	30	16.9		6308	701	0.50	U	84	4.6	U	522	473
	MB-7	473.2	118.0	43.3	0.30	U	23	4	0.9	U	8202	739	1.8	U	77	46	1.8	U	581	23	2.8		8282	567	0.50	U	59	4.6	U	437	366
	MB-8	884.6	128.0	88.6	0.30	U	34	5	0.9	U	8383	1000	1.8	U	109	61	1.8	U	946	37	3.7		7220	803	0.50	U	111	4.6	U	597	541
	MB-9	266.5	63.7	23.4	0.30	U	11	2	0.9	U	3748	446	1.8	U	43	26	1.8	U	270	11	1.1	J	3137	349	0.50	U	20	4.6	U	259	236
	MB-10	454.3	120.0	37.5	0.30	U	22	4	0.9	U	8699	718	1.8	U	74	43	1.8	U	561	22	1.0	U	8104	567	0.50	U	55	4.6	U	422	382
	Duplicate +	502.8	136.0	36.3	0.30	U	24	4	0.9	U	8516	777	1.8	U	81	47	1.8	U	636	25	2.9		5668	618	0.50	U	66	R		460	416
Pond Water	On-site (S)	279.7	83.8	29.2	0.30	U	13	3	0.9	U	4032	481	1.9	J	47	29	1.8	U	302	12	3.2		3386	376	0.50	U	24	4.6	U	280	253
Surface Water	SW-1	393.7	101.0	34.3	0.30	U	18	3	0.90	U	5334	636	1.8	U	64	38	1.8	U	467	18	1.8	J	4821	503	0.50	U	43	4.6	U	374	338
	Duplicate++	344.9	86.4	30.1	0.30	U	16	3	0.90	U	4786	571	25.0	U	57	34	1.8	U	395	16	2.2		4042	449	0.50	U	34	4.6	U	334	303
	SW-5	381.8	97.9	33.3	0.30	U	18	3	0.90	U	5202	620	1.8	U	63	37	1.8	U	449	18	2.8		4406	490	0.50	U	41	6.4	J	364	330
	SW-6	369.0	94.6	32.2	0.30	U	17	3	0.90	U	5059	603	1.8	U	61	36	1.8	U	430	17	1.4	J	4280	476	0.50	U	38	4.6	U	354	320

Notes:
* - Values calculated according to the Indiana Register (1990) (327 IAC 2).
** - Sample concentrations are ug/L (ppb)
AAC - Acute Aquatic Criteria
CAC - Chronic Aquatic Criteria
+ - Duplicate sample collected from monitoring well MB-1.
++ - Duplicate sample collected from surface water sampling location SW-1.
(1) No CAC is calculated for silver.

TABLE 12: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, MARCH 2002

Parameter	Matrix	Sample Location	Monitoring Well Zone (1)	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average (1) Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L) (2)	Exceeds Criterion
Dissolved TAL Metals											
Arsenic	Groundwater	MB-1	I	6.6	HH	0.175	I	21.2	Yes	0.01	No
Arsenic	Groundwater	MB-2	I	35.8	HH	0.175	I	21.2	Yes	0.01	No
Arsenic	Groundwater	MB-5	II	6	HH	0.175	I	86.5	Yes	0.05	No
Arsenic	Groundwater	MB-6	II	167	HH	0.175	I	86.5	Yes	0.05	No
Arsenic	Groundwater	MB-7	III	72.7	HH	0.175	I	102.4	Yes	0.06	No
Arsenic	Groundwater	MB-8	III	132	HH	0.175	I	102.4	Yes	0.06	No
Arsenic	Groundwater	MB-9	NA	8.7	HH	0.175	I	–	–	–	–
Arsenic	Groundwater	Duplicate	I	7.5	HH	0.175	I	21.2	Yes	0.01	No
Arsenic	Groundwater	MB-6	II	167	MCL	50	E	86.5	Yes	0.05	No
Arsenic	Groundwater	MB-7	III	72.7	MCL	50	E	102.4	Yes	0.06	No
Arsenic	Groundwater	MB-8	III	132	MCL	50	E	102.4	Yes	0.06	No
Iron	Groundwater	MB-1	I	1700	AAC	1000	E	8250	Yes	5	No
Iron	Groundwater	MB-2	I	14800	AAC	1000	E	8250	Yes	5	No
Iron	Groundwater	MB-5	II	1690	AAC	1000	E	12345	Yes	7	No
Iron	Groundwater	MB-6	II	23000	AAC	1000	E	12345	Yes	7	No
Iron	Groundwater	MB-7	III	9960	AAC	1000	E	11480	Yes	6	No
Iron	Groundwater	MB-8	III	13000	AAC	1000	E	11480	Yes	6	No
Iron	Groundwater	MB-9	NA	2280	AAC	1000	E	–	–	–	–
Iron	Groundwater	Duplicate	I	2110	AAC	1000	E	8250	Yes	5	No
Indicator Parameters				(mg/L)		(mg/L)		(mg/L)		(mg/L)	
Unionized	Groundwater	MB-2	I	0.0084	CAC	0.0029	E	0.0043	Yes	0.000002	No
Ammonia (mg/L)	Groundwater	MB-6	II	0.0042	CAC	0.0029	E	0.0026	No	0.000001	No
	Groundwater	MB-7	III	0.0168	CAC	0.0029	E	0.0150	Yes	0.000008	No
	Groundwater	MB-8	III	0.0132	CAC	0.0029	E	0.0150	Yes	0.000008	No

Notes:

AAC - Acute Aquatic Criteria
CAC - Chronic Aquatic Criteria
Duplicate - Duplicate sample collected from monitoring well MB-1
NA - Not applicable; sampling location is not included in the monitoring zone calculations.
HH - Human Health Criteria
MCL - Maximum Contaminant Level

(1) Refer to the Environmental Resources Management (ERM) Remedial Action Plan for Marion (Bragg) Landfill Site, Marion, Indiana, dated 1989, for definition of monitoring well zones and concentration calculations. Monitoring well zone I will consist of MB-1 and MB-2 with condensed monitoring program, since MB-3 and MB-4 have been removed from the sampling program.

(2) Refer to the Camp, Dresser, and McKee (CDM) Remedial Investigation Report, dated 1987, for mixing zone calculations.

APPENDIX A

Chain-of-Custody Forms

CHAIN-OF-CUSTODY RECORD

No. 057581

COMPUCHEM
a division of Liberty Analytical Corp.
501 Madison Avenue
Cary, NC 27513
1-800-833-5097

Project Name: Marion Bragg	Client Address: OCM Inc	Point-of-Contact: P Barton / C Jackson
Carrier: Fed Ex	105 Commerce Dr	Telephone No. 317 718 3083
Airbill No. [illegible]	Suite B	Sampling complete? (Y) or N (see Note 1)
Sampler Name: [illegible]	[illegible], IN [illegible]	Project-specific (PS) or Batch (B) QC? PS
	Sampler Signature: [illegible]	

BOX #1 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil / Sediment / Sludge 6. Trip Blank 7. Oil 8. Waste 9. Other Field Blank

BOX #2 A. HCl + Ice B. HNO3 + Ice C. NaOH + Ice D. H2SO4 + Ice E. Unpreserved F. Ice Only G. Other______ H. NaHSO4 + Ice I. ZnAc+NaOH + Ice

BOX #3 F. Filtered U. Unfiltered

Box #4 H. High M. Medium L. Low

Box #5 C. CLP 3/90 S. SW-846 W. CWA 600-series O. Other______ T. TCLP

Sample ID (9 characters maximum)	Date: Year 2002	Time	Box #1 Matrix	Box #2 Preservative	Box #3 Filtered / Unfiltered	Box #4 Expected Conc.	Box #5 Method	No. of Bottles	Use for Lab QC (MS or DUP)	VOA	SVOC	Pesticide	PCB	Herbicide	Metals / Mercury dissolved	Cyanide	TOC / TOX	O&G / TPH	COD	TSS Cl NH3N	Remarks / Comments (see Notes 2 & 3)
WO8MSDCJ	3/20	[illegible]	9	K	B	L	S	8		X	X				X				X	X	Extra VOC for pH check
WO1CJ	3/19	[illegible]	↓	↓	↓	↓	↓	↓		↓	↓				↓				↓	↓	
WO1DUPCJ	/	↓	↓	↓	↓	↓	↓	↓		↓	↓				↓				↓	↓	VOC - HCl + ICE
WO1MSCJ	/	↓	↓	↓	↓	↓	↓	↓		↓	↓				↓				↓	↓	SVOC - ICE
WO1MSDCJ	/	↓	↓	↓	↓	↓	↓	↓		↓	↓				↓				↓	↓	dissolved Metals - HNO3+ICE
WO2CJ	/	11:20	↓	J	↓	↓	↓	5			X				X				X	X	TSS/Cl/NH3N - ICE
WO3CJ	/	14:[illegible]	↓	J		↓	↓	5			X				X				X	X	
WO4TBCJ	/	16:[illegible]	6	A	4	↓	↓	3		X											NH3N samples need to
WO1CJ	/	15:30	1	J	B	↓	↓	5			X				X				X	X	be preserved in house
WO9FBCJ	3/11	16:[illegible]	9	K	B4	L	S	8		X	X				X				X	X	

nts Special Instructions: pls record temp of cooler and pH of samples on COC upon Receipt Temperature ______ °C

Received in Good Condition? Y or N Describe Problems, if any:

Relinquished By: (Sig) [illegible]	Date: 3/20/02	#2 Relinquished By: (Sig)	Date:	#3 Relinquished By: (Sig)	Date:
Company Name: OCM, Inc	Time: 1500	Company Name:	Time:	Company Name:	Time:
Received By: (Sig)	Date:	#2 Received By: (Sig)	Date:	#3 Received By: (Sig)	Date:
Company Name:	Time:	Company Name:	Time:	Company Name:	Time:

Note (1): If "N" lab will hold samples to await remainder of project-maximizing batch size and minimizing QC ratio; if "Y" lab will begin processing batches now.
Note (2): Samples stored 60 days after date report mailed at no extra charge. Note (3): All lab copies of data destroyed after three years.

CHAIN-OF-CUSTODY RECORD

No. 057579

CompuChem
a division of Liberty Analytical Corp.
501 Madison Avenue
Cary, NC 27513
1-800-833-5097

Project Name: Marion Battery	Client Address: O&M Inc 105 Commerce Dr Suite B Danville, VA 24122	Point-of-Contact: P. Burton / C. Jackson
Carrier: Fed Ex 2 Day		Telephone No.: 317 718 3688
Airbill No.: 8253 4677 1150		Sampling complete? (Y) or N (see Note 1)
Sampler Name: Peter Burton	Sampler Signature: [signature]	Project-specific (PS) or Batch (B) QC? PS

BOX #1: 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil / Sediment / Sludge; 6. Trip Blank; 7. Oil; 8. Waste; 9. Other_____

BOX #2: A. HCl + Ice; B. HNO3 + Ice; C. NaOH + Ice; D. H2SO4 + Ice; E. Unpreserved; F. Ice Only; G. Other_____; H. NaHSO4 + Ice; I. ZnAc+NaOH + Ice

BOX #3: F. Filtered; U. Unfiltered

Box #4: H. High; M. Medium; L. Low

Box #5: C. CLP 3/90; S. SW-846; W. CWA 600-series; O. Other_____; T. TCLP

Sample ID (9 characters maximum)	Date: Year 2002	Time	Box #1 Matrix	Box #2 Preservative	Box #3 Filtered / Unfiltered	Box #4 Expected Conc.	Box #5 Method	No. of Bottles	Use for Lab QC (MS or DUP)	VOA	SVOC	Pesticide	PCB	Herbicide	Metals / Mercury (dissolved)	Cyanide	TOC / TOX	O&G / TPH	TSS / Cl / NH3N	COD	Remarks / Comments (see Notes 2 & 3)
MW01CT	3/12	7:[illegible]	3	D	U	L	5	2			X				X				X	X	VOC - HCl + Ice
MW02CB	1	8:10																			SVOC - Ice
MW03CB	1	08:40																			dissolved metals HNO3 + Ice
MW01CB	1	[illegible]																			COD - H2SO4 + Ice
MW05CB	1	9:25																			TSS / Cl / NH3N - Ice
MW04CB	1	10:30		L				L													
MW07CB	1	11:45		K				2		X											The VOA samples need to be preserved in house / were not sent to O&M w/ Preserv.
MW06CB	1	12:45																			
MW08DUPCT	1	12:[illegible]																			
MW08MSCB	1	13:45																			

Comments Special Instructions: pls record Temp & circle out pH of samples on COC upon receipt Temperature _____ °C

Lab: Received in Good Condition? Y or N Describe Problems, If any:

Relinquished By: (Sig)	Date: 3/12	#2 Relinquished By: (Sig)	Date:	#3 Relinquished By: (Sig)	Date:
Company Name: CAPE	Time: 14:20	Company Name:	Time:	Company Name:	Time:
Received By: (Sig)	Date:	#2 Received By: (Sig)	Date:	#3 Received By: (Sig)	Date:
Company Name:	Time:	Company Name:	Time:	Company Name:	Time:

Note (1): If "N" lab will hold samples to await remainder of project-maximizing batch size and minimizing QC ratio; if "Y" lab will begin processing batches now.
Note (2): Samples stored 60 days after date report mailed at no extra charge. Note (3): All lab copies of data destroyed after three years.

APPENDIX B

Trillium, Inc.

Data Validation Reports

TRILLIUM INC.

DATA VALIDATION

FOR

MARION BRAGG LANDFILL
MARION, INDIANA

ORGANIC ANALYSIS DATA
Volatiles in Water

SDG Nos. QQ1067 and QR1067
March 2002 Sample Collections

Chemical Analyses Performed by:

CompuChem Environmental
Cary, North Carolina

FOR

O & M, Inc.
Danville, Indiana

BY

Trillium, Inc.
356 Farragut Crossing Drive
Knoxville, Tennessee 37922
(865) 966-8880

May 16, 2002

92241/EKD/CAE
\MARION\Mar02\voc

TRILLIUM INC.

EXECUTIVE SUMMARY

Validation of the volatile organics analysis data prepared by CompuChem Environmental for five water samples, one field blank, and one trip blank from the Marion Bragg Landfill site in Marion, Indiana, has been completed by Trillium, Inc. The data were reported by the laboratory in two separate data packages, under Sample Delivery Group (SDG) Numbers QQ1067 and QR1067, which were received for review on April 2, 2002. The following samples were reported:

SDG No. QQ1067:

GW08CJ (MB-1) GW08DPCJ (MB-1D) GW07CJ (MB-2)
GW09FBCJ (field blank)

SDG No. QR1067:

SW01CJ (SW-1) SW01DPCJ (SW-1D) SW04TBCJ (trip blank)

Findings of the validation effort resulted in the following qualifications of reported sample results:

- Results for bromomethane in all samples were qualified as less than the contract required quantitation limit (CRQL, 10 U).
- Results for 1,1,2-trichloro-1,2,2-trifluoroethane in GW08CJ, GW08DPCJ, GW07J, GW09FBCJ, SW01CJ, and SW01DPCJ were qualified as less than the CRQL (10 U).
- Results for chloromethane and methylene chloride in GW08CJ, GW08DPCJ, GW07CJ, SW01CJ, and SW01DPCJ were qualified as less than the CRQL (10 U).
- Results for acetone in GW08DPCJ, GW07CJ, SW01CJ, and SW01DPCJ were qualified as less than the CRQL (10 U).
- The result for trans-1,2-dichloroethene in GW08CJ was qualified as not detected at the CRQL (10 U).

All "B" qualifiers, applied by the laboratory to indicate the presence of an analyte in the associated method blank, were removed by the validator. Laboratory-applied "J" qualifiers were not removed by the validator except where superceded by validator-applied qualifiers.

Brief explanations of the reasons for the actions taken above may be found in the Overall Assessment (Section XIV). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues observed in the data packages are discussed in Section XIII.

This validation report should be considered part of both data packages for all future distributions of the volatiles data.

INTRODUCTION

Analyses were performed according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis (OLM04.2). Results of sample analyses are reported by the laboratory as either qualified or unqualified; various qualifier codes are used to denote specific information regarding the analytical results.

Validation was performed in accordance with the USEPA "Contract Laboratory Program National Functional Guidelines for Organic Data Review" (EPA 540/R-99/008, 10/99). The EPA Region II Standard Operating Procedure HW-6 (Rev. 11), "Evaluation of Organics Data for the CLP," (6/96) was also considered during the evaluation and professional judgment was applied as necessary and appropriate.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the CLP. An initial assumption is that each data package is presented in accordance with the CLP requirements. It is also assumed that each data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes in accordance with the National Functional Guidelines:

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

These codes are recorded on the customized data tables in Attachment A and the laboratory's Organic Analysis Data Sheets (Form I, Attachment B) to qualify the results as appropriate according to the review of the data packages.

Two facts should be noted by all data users. First, **the "R" qualifier means that the laboratory-reported value is unusable.** In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, **no analyte concentration is guaranteed to be accurate even if all associated quality control is acceptable.** Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

The water samples and associated blanks were collected March 19-20, 2002. All sample analyses were performed within seven days of collection, which is acceptable for water samples. Acceptable pH values of 1 were determined by the laboratory for each sample, confirming successful chemical preservation. Sample pHs were not documented directly on the chain of custody (COC) records, but were recorded on Water Batch Sheets provided in both data packages.

An acceptable cooler temperature (3 °C) on receipt at the laboratory was recorded on both COC records applicable to these samples. The same temperature was also recorded on the laboratory's receiving logs in both data packages.

Sampler notations on each COC indicate that the samples for volatiles analysis were preserved with hydrochloric acid and iced. The narrative in each data package further states that all samples were received intact and properly refrigerated.

II. GC/MS Instrument Performance Checks

Three instrument performance checks using bromofluorobenzene (BFB) were run and reported, representing every shift (12-hour period) during which samples or associated standards and quality control samples were analyzed. Results for all three performance checks were acceptable.

III. Calibration

Analyses were performed on a single gas chromatograph/mass spectrometer (GC/MS) system identified as F50055. Chloromethane, vinyl chloride, and bromomethane were manually integrated in some of the calibration standards associated with this data set. In each case, the manual integration was correctly performed, properly documented and accurately incorporated into the applicable quantitation report. No system monitoring or internal standard peaks were manually integrated.

A. Initial Calibration (IC)

One ambient purge IC run on 3/14/02 was associated with the reported sample analyses. Documentation of all individual IC standards run was present in the data packages and relative response factor (RRF) as well as percent relative standard deviation (%RSD) values were correctly calculated and accurately reported. All RRF values were above the minimum acceptance criterion (0.05) and %RSD values were below the 30% maximum acceptance criterion in all cases.

B. Continuing Calibration (CC)

Reported site sample and quality control analyses were performed under two CC standards, (3/26/02-10:07 and 3/27/02-08:13). Documentation of both CC standards was present in the data

packages and RRF as well as percent difference (%D) values were correctly calculated and accurately reported. All RRFs were above the 0.05 minimum criterion, and all %D values were less than the maximum acceptance limit of 25% in both CC standards.

IV. Blanks

Two laboratory method blanks (MBs: VBLKFT and VBLKHS) were analyzed with the samples in these SDGs. Bromomethane (1 µg/L), 1,1,2-trichloro-1,2,2-trifluoroethane (0.8 µg/L), trichloroethene (0.5 µg/L), 1,1,2,2-tetrachloroethane (0.9 µg/L), 1,2-dibromo-3-chloropropane (3 µg/L), and 1,2,4-trichlorobenzene (1 µg/L) were detected in VBLKFT, and bromomethane (0.7 µg/L), chloroform (0.4 µg/L), trichloroethene (0.6 µg/L), 1,2-dibromo-3-chloropropane (3 µg/L), and 1,2,4-trichlorobenzene (1 µg/L) were detected in VBLKHS. Results for bromomethane in all samples and for 1,1,2-trichloro-1,2,2-trifluoroethane in GW08CJ, GW08DPCJ, GW07CJ, GW09FBCJ, SW01CJ, and SW01DPCJ were qualified as less than the contract required quantitation limit (CRQL, 10 U) because the reported values were less than five times the concentration found in the associated method blank. The "B" qualifiers applied by the laboratory to results for bromomethane, 1,1,2-trichloro-1,2,2-trifluoroethane, and trichloroethene to indicate that these three compounds were also present in the associated method blank were removed by the validator.

Where detected in the site samples, concentrations of trichloroethene were greater than five times the method blank concentration, and chloroform, 1,1,2,2-tetrachloroethane, 1,2-dibromo-3-chloropropane, and 1,2,4-trichlorobenzene were not detected in any of the associated site samples. Therefore, no additional qualifiers were required based on method blank contamination.

One storage blank (VHBLKFT) was also analyzed in association with the site samples. Bromomethane was detected in VHBLKFT at 0.6 µg/L. Results for this compound in all samples were previously qualified based on the presence of this compound in the associated method blank, and no additional action was taken based on storage blank contamination.

One trip blank (SW04TBCJ) and one field blank (GW09FBCJ) were included in this data set. After qualifications based on laboratory blank contamination, chloromethane (2 µg/L), acetone (5 µg/L), and methylene chloride (0.4 µg/L) were found in SW04TBCJ, and chloromethane (2 µg/L), acetone (4 µg/L), and methylene chloride (0.5 µg/L) were found in GW09FBCJ. Based on associated field-submitted blank contamination, results for chloromethane and methylene chloride in GW08CJ, GW08DPCJ, GW07CJ, SW01CJ, and SW01DPCJ and for acetone in GW08DPCJ, GW07CJ, SW01CJ, and SW01DPCJ were qualified as less than the CRQL (10 U). In each case, the concentration of the qualified analyte was less than ten times (for acetone and methylene chloride) or five times (for chloromethane) the associated field-submitted blank concentration.

V. System Monitoring Compound Recoveries

Recoveries of the three system monitoring compounds (SMCs) in the reported results for all samples and blanks were correctly calculated, accurately reported and within the acceptance limits as documented on the summary forms.

VI. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Samples GW08CJ and SW01CJ were prepared and analyzed as MS/MSD pairs. Percent recoveries (%R) and relative percent differences (RPDs) between paired recoveries were correctly calculated and accurately reported for both sets of data. The %Rs for all spiked target compounds were acceptable (90-102%) and reproducible (RPDs $\leq$4) in both quality control sample pairs.

A comparison of results for nonblank-related, unspiked target analytes in GW08CJ, the MS, and the MSD was made. Agreement among the three results for trans-1,2-dichloroethene (21.7%RSD) and cis-1,2-dichloroethene (6.7%RSD) was acceptable.

No nonblank-related, unspiked target analytes were detected in any of the three analyses of SW01CJ.

VII. Field Duplicate

Sample GW08DPCJ was identified as a field duplicate of GW08CJ. Agreement between paired results for cis-1,2-dichloroethene (11.8 RPD) and trichloroethene (8.2 RPD) was acceptable. trans-1,2-Dichloroethene was reported at a very low concentration in GW08CJ (0.2 µg/L) but was not detected in in GW08DPCJ (10 U). The result for trans-1,2-dichloroethene in GW08CJ was qualified as not detected at the CRQL (10 U) due to lack of confirmation at a very low concentration in the field duplicate analysis.

Sample SW01DPCJ was identified as a field duplicate of SW01CJ. No nonblank-related, unspiked target analytes were detected in either of the paired field duplicate samples, therefore no quantitative evaluation of precision could be made using these data.

VIII. Internal Standard (IS) Performance

All IS areas and retention times were within documented quality control limits for the reported sample analyses.

IX. Target Compound Identification

All reported target analytes were correctly identified with acceptable supporting mass spectra present in the applicable data packages.

X. Compound Quantitation and Reported Detection Limits

Target compound concentrations and CRQLs were correctly calculated and accurately reported. No dilutions were required for any of the samples.

"J" qualifiers were appropriately applied by the laboratory to the sample Form Is when the concentration of an analyte was less than the sample-specific quantitation limit. Except where superseded by another qualifier (e.g., "U" at the CRQL) these "J" qualifiers were not removed by the validator.

The data tables in Attachment A list all individual sample analyte results, whether or not the value or qualifier was changed as a result of the validation. Sample-specific quantitation limits may be found on the laboratory-generated Form I for each sample (Attachment B) as well as on the data tables.

XI. Tentatively Identified Compounds (TIC)

Library searches were performed as required for the samples in this data set. No TICs were reported in any of the site samples.

XII. System Performance

The GC/MS system appears to have been working satisfactorily at the time of these analyses, based on review of the available raw data.

XIII. Documentation

The two chain of custody (COC) records applicable to these samples were present in both data packages. The following issues were noted:

- Improper corrections were observed on both of the COC records. All corrections to these important legal documents must be made by drawing a single line through the incorrect entry, inserting the correct information, and initialing and dating the change. Obliterations and "write-overs" are not legally defensible.

- A copy of the courier airbill was not included in either data package to document the shipment portion of the sample transfers. The airbill number, however, was documented on both of the COC records.

- Although this approach is specified by the Quality Assurance Project Plan (QAPP), additional sample volumes provided to facilitate the laboratory's analysis of an MS/MSD pair should not be recorded on the COC as separate samples. Instead, a notation should be made indicating the sample for which extra volume has been provided, with the instruction that this sample be used for the MS/MSD analysis. MS/MSD analyses are laboratory-initiated quality control; if not for the logistical need to provide sufficient volume for the multiple analyses involved, MS/MSD pairs would never be mentioned on COC documentation.

These documentation issues do not directly affect the technical validity of the data generated for these samples, however some of them could be problematic if the data were to be used in litigation.

XIV. Overall Assessment

Results for volatile compounds in the samples reported in SDG Nos. QQ1067 and QR1067 were qualified as follows based on the validation effort:

- Results for bromomethane in all samples were qualified as less than the CRQL (10 U) based on associated method blank contamination.

- Results for 1,1,2-trichloro-1,2,2-trifluoroethane in GW08CJ, GW08DPCJ, GW07CJ, GW09FBCJ, SW01CJ, and SW01DPCJ were qualified as less than the CRQL (10 U) based on associated method blank contamination.

- Results for chloromethane and methylene chloride in GW08CJ, GW08DPCJ, GW07CJ, SW01CJ, and SW01DPCJ were qualified as less than the CRQL (10 U) based on associated field-submitted blank contamination.

- Results for acetone in GW08DPCJ, GW07CJ, SW01CJ, and SW01DPCJ were qualified as less than the CRQL (10 U) based on associated field-submitted blank contamination.

- The result for trans-1,2-dichloroethene in GW08CJ was qualified as not detected at the CRQL (10 U) due to lack of confirmation at a very low concentration in the field duplicate analysis.

All "B" qualifiers, applied by the laboratory to indicate the presence of the analyte in the associated method blank, were removed by the validator. Laboratory-applied "J" qualifiers were not removed by the validator except where superceded by validator-applied qualifiers, as noted above.

Documentation issues observed in the data packages are discussed in Section XIII.

This validation report should be considered part of both data packages for all future distributions of the volatiles data.

TRILLIUM INC.

ATTACHMENT A

DATA TABLES
SDG Nos. QQ1067 and QR1067
Volatiles in Water - Marion Bragg, March 2002

Marion Bragg Landfill - September 2001 - Volatiles in Ground and Surface Waters

Results are in ug/L

Collection Point ==========>		MB-1	MB-1D	MB-2	Field Blank
Sample ID ==========>		GW08CJ	GW08DPCJ	GW07CJ	GW09FBCJ
Lab Sample No. ==========>		QQ1067-8	QQ1067-9	QQ1067-7	QQ1067-10
Collection Date. ==========>		3/20/02	3/20/02	3/20/02	3/19/02
	CRQL				
Dichlorodifluoromethane	10	10 U	10 U	10 U	10 U
Chloromethane	10	10 U	10 U	10 U	2 J
Vinyl Chloride	10	10 U	10 U	0.8 J	10 U
Bromomethane	10	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U
Trichlorofluoromethane	10	10 U	10 U	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U	10 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	10	10 U	10 U	10 U	10 U
Acetone	10	10 U	10 U	10 U	4 J
Carbon Disulfide	10	10 U	10 U	10 U	10 U
Methyl acetate	10	10 U	10 U	10 U	10 U
Methylene chloride	10	10 U	10 U	10 U	0.5 J
trans-1,2-dichloroethene	10	10 U	10 U	10 U	10 U
Methyl tert-butyl ether	10	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U	10 U	10 U
cis-1,2-dichloroethene	10	9 J	8 J	0.7 J	10 U
2-Butanone	10	10 U	10 U	10 U	10 U
Chloroform	10	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U	10 U	10 U
Cyclohexane	10	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U	10 U
Trichloroethene	10	47	51	10 U	10 U
Methylcyclohexane	10	10 U	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U	10 U
Bromodichloromethane	10	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U	10 U
Tetrachloroethene	10	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U	10 U
1,2-Dibromoethane	10	10 U	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	0.8 J	10 U
Ethylbenzene	10	10 U	10 U	10 U	10 U
Total Xylenes	10	10 U	10 U	10 U	10 U
Styrene	10	10 U	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U	10 U
Isopropylbenzene	10	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	10	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U

Marion Bragg Landfill - September 2001 - Volatiles in Ground and Surface Waters

Results are in ug/L

Collection Point ==========>		SW-1	SW-1D	Trip Blank
Sample ID ==========>		SW01CJ	SW01DPCJ	SW04TBCJ
Lab Sample No. ==========>		QR1067-1	QR1067-2	QR1067-6
Collection Date. ==========>		3/19/02	3/19/02	3/19/02
	CRQL			
Dichlorodifluoromethane	10	10 U	10 U	10 U
Chloromethane	10	10 U	10 U	2 J
Vinyl Chloride	10	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U
Trichlorofluoromethane	10	10 U	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	10	10 U	10 U	10 U
Acetone	10	10 U	10 U	5 J
Carbon Disulfide	10	10 U	10 U	10 U
Methyl acetate	10	10 U	10 U	10 U
Methylene chloride	10	10 U	10 U	0.4 J
trans-1,2-dichloroethene	10	10 U	10 U	10 U
Methyl tert-butyl ether	10	10 U	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U	10 U
cis-1,2-dichloroethene	10	10 U	10 U	10 U
2-Butanone	10	10 U	10 U	10 U
Chloroform	10	10 U	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U	10 U
Cyclohexane	10	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U
Trichloroethene	10	10 U	10 U	10 U
Methylcyclohexane	10	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U
Bromodichloromethane	10	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U
4-Methyl-2-pentanone	10	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U
Tetrachloroethene	10	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U
1,2-Dibromoethane	10	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	10 U
Ethylbenzene	10	10 U	10 U	10 U
Total Xylenes	10	10 U	10 U	10 U
Styrene	10	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U
Isopropylbenzene	10	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	10	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U

TRILLIUM INC.

ATTACHMENT B

ORGANIC ANALYSIS DATA SHEETS (Form I)
SDG Nos. QQ1067 and QQR1067
Volatiles in Water - Marion Bragg, March 2002

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-8

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-8A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	~~10~~ 2	~~J~~ U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	~~10~~ 2	~~JB~~ U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	~~10~~ 2	~~JB~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	~~10~~ 0.5	~~J~~ U
156-60-5	trans-1,2-Dichloroethene	~~10~~ 0.2	~~J~~ U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	9	J
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U

L. Dickinson
5/16/02

1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-8

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-8A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	47	~~B~~
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (Total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-Chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

E. Dickinson
5/16/02

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW08CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-8

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-8A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-9

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-9A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10 ~~J~~	~~J~~ U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10 ~~J~~	~~JB~~ U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	10 ~~J~~	~~JB~~ U
67-64-1	Acetone	10 ~~J~~	~~J~~ U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10 ~~0.4~~	~~J~~ U
156-60-5	trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	8	J
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U

E. Dickinson
5/16/02

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-9

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-9A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	51	~~B~~
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (Total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-Chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

E. Dickinson
5/16/02

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW08DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-9

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-9A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW07CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-7

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-7A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	~~10~~ 2	~~J~~ U
75-01-4	Vinyl Chloride	0.8	J
74-83-9	Bromomethane	~~10~~ 2	~~JB~~ U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	~~10~~ 1	~~JB~~ U
67-64-1	Acetone	~~10~~ 6	~~J~~ U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	~~10~~ 0.4	~~J~~ U
156-60-5	trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	0.7	J
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U

E. Dickinson
5/16/02

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW07CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-7

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-7A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	0.8	J
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (Total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-Chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GW07CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-7

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-7A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW09FBCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-10

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-10A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	2	J
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10 2	~~JB~~ U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	10 2	~~JB~~ U
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	0.5	J
156-60-5	trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U

K. Dickinson
5/16/02

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW09FBCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-10

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-10A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (Total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-Chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW09FBCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-10

Sample wt/vol: 5 (g/mL) ML Lab File ID: QQ1067-10A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-1

Sample wt/vol: 5 (g/mL) ML Lab File ID: QR1067-1A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	~~10~~ 2	~~J~~ U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	~~10~~ 2	~~JB~~ U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	~~10~~ 2	~~JB~~ U
67-64-1	Acetone	~~10~~ 6	~~J~~ U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	~~10~~ 0.5	~~J~~ U
156-60-5	trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U

E. Dickinson
5/16/02

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-1

Sample wt/vol: 5 (g/mL) ML Lab File ID: QR1067-1A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (Total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-Chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-1

Sample wt/vol: 5 (g/mL) ML Lab File ID: QR1067-1A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW01DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-2

Sample wt/vol: 5 (g/mL) ML Lab File ID: QR1067-2A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10 ~~3~~	~~J~~ U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10 ~~2~~	~~JB~~ U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	10 ~~1~~	~~JB~~ U
67-64-1	Acetone	10 ~~5~~	~~J~~ U
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	10 ~~0.5~~	~~J~~ U
156-60-5	trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U

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5/16/02

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW01DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-2

Sample wt/vol: 5 (g/mL) ML Lab File ID: QR1067-2A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (Total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-Chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SW01DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-2

Sample wt/vol: 5 (g/mL) ML Lab File ID: QR1067-2A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW04TBCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-6

Sample wt/vol: 5 (g/mL) ML Lab File ID: QR1067-6A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	2	J
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10 ~~2~~	~~JB~~ U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	0.4	J
156-60-5	trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U

L. Dickinson
5/16/02

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW04TBCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-6

Sample wt/vol: 5 (g/mL) ML Lab File ID: QR1067-6A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	10	U
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (Total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-Chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

1F

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SW04TBCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-6

Sample wt/vol: 5 (g/mL) ML Lab File ID: QR1067-6A55

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: not dec. _____ Date Analyzed: 03/26/02

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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TRILLIUM INC.

DATA VALIDATION

FOR

MARION BRAGG LANDFILL
MARION, INDIANA

ORGANIC ANALYSIS DATA
Semivolatiles in Water

SDG Nos. QQ1067 and QR1067

Chemical Analyses Performed by:
CompuChem Environmental
Cary, North Carolina

FOR

O & M, Inc.
Danville, Indiana

BY

Trillium, Inc.
356 Farragut Crossing Drive
Knoxville, Tennessee 37922
(865) 966-8880

May 16, 2002

92241/EKD/CAE
\MARION\Mar02\BNA

TRILLIUM INC.

EXECUTIVE SUMMARY

Validation of the semivolatile organics analysis data prepared by CompuChem Environmental for 14 water samples and one field blank from the Marion Bragg Landfill site in Marion, Indiana, has been completed by Trillium, Inc. The data were reported by the laboratory in two data packages under Sample Delivery Group (SDG) Nos. QQ1067 and QR1067, which were received for review on April 2, 2002. The following samples were reported:

SDG No. QQ1067:

GW08CJ (MB-1)	GW08DPCJ (MB-1D)	GW07CJ (MB-2)
GW03CJ (MB-5)	GW04CJ (MB-6)	GW05CJ (MB-7)
GW06CJ (MB-8)	GW02CJ (MB-9)	GW01CJ (MB-10)
GW09FBCJ (Field Blank)		

SDG No. QR1067:

PW01CJ (PW-1)	SW01CJ (SW-1)	SW01DPCJ (SW-1D)
SW02CJ (SW-5)	SW03CJ (SW-6)	

Findings of the validation effort resulted in the following qualifications of sample results:

- Results for 2,4-dinitrophenol in GW04CJRE, PW01CJ, SW01DPCJ, SW02CJ, and SW03CJ were qualified as estimated (UJ).
- Results for bis(2-ethylhexyl)phthalate in GW08DPCJ, GW07CJ, GW04CJ, GW04CJRE, GW06CJ, and GW01CJ were qualified as less than the sample-specific contract required quantitation limit (CRQL) or less than the reported value (U), whichever was greater.
- Results for di-n-butylphthalate in GW08CJ and GW04CJ were qualified as less than the sample-specific CRQLs (U).
- The result for the tentatively identified compound (TIC) reported at 15.89 minutes in GW08DPCJ was rejected (R).
- The result for the TIC at 24.54 minutes in SW01DPCJ was rejected (R).

- Results for di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene in GW04CJ were rejected (R).

- Results for di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene in GW04CJRE were qualified as estimated (UJ).

- Sample-specific CRQLs for all samples were adjusted by the validator as listed in Section XI.

- Results for the TIC reported as trichloropropene and detected at approximately 5.6 minutes in GW01CJ, GW02CJ, GW03CJ, GW04CJRE, GW05CJ, and GW06CJ were rejected (R).

- Results for the TICs at 7.30 minutes and 10.57 minutes in GW04CJRE were rejected (R).

- The complete compound name for the peak at RT 14.13 minutes (1,4,5,6,7,7-hexachloro-bicyclo[2.2.1]hept-5-ene-2,3-dicarboxylic acid) in GW07CJ was added to the Form I-TIC for this sample by the validator.

Brief explanations of the reasons for the actions taken above may be found in the Overall Assessment (Section XV). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section XIV.

Only the results recommended for use by the validator have been reported on the data tables included in Attachment A. These represent the re-analysis results for GW04CJ (GW04CJRE) and have been determined to be the most technically usable results for this sample based on the validation effort. In Attachment B, the Form I for the original analysis of GW04CJ has been marked "Do Not Use" for clarity.

This validation report should be considered part of both data packages for all future distributions of the semivolatiles data.

INTRODUCTION

Analyses were performed according to the USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) for Organics Analyses OLM04.2. Results of sample analyses are reported by the laboratory as either qualified or unqualified; various qualifier codes are used to denote specific information regarding the analytical results.

Validation was performed in conformance with the USEPA "Contract Laboratory Program National Functional Guidelines for Organic Data Review" (EPA 540/R-99/008, 10/99). The EPA Region II Standard Operating Procedure HW-6 (Rev 11), "Evaluation of Organics Data for the CLP," (6/96) was also considered during the evaluation and professional judgment was applied as necessary and appropriate.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the CLP. An initial assumption is that each data package is presented in accordance with the CLP requirements. It is also assumed that each data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes in accordance with the National Functional Guidelines:

U - The material was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified, and the results are therefore unusable.

These codes are recorded on the customized data tables contained in Attachment A and the Organic Analysis Data Sheets (Form Is) in Attachment B of this validation report to indicate qualifications placed on the data as a result of the review.

Two facts should be noted by all data users. First, **the "R" qualifier means that the laboratory-reported value is unusable.** In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, **no analyte concentration is guaranteed to be accurate even if all associated quality control is acceptable.** Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

The samples were collected March 19-20, 2002. Sample extractions were performed on March 22, 2002, which is within the established (seven days from collection) holding time for all samples. Analyses were performed March 24-25, 2002, well within the required holding time of 40 days from extraction. Therefore, all holding times were met.

An acceptable (4°C ±2°C) cooler temperature (3°C) on receipt at the laboratory was recorded on both COC records applicable to these samples. The same temperature was also recorded on the laboratory's receiving logs in both data packages.

Sampler notations on each COC indicate that the samples for semivolatiles analysis were iced. The narrative in each data package further states that all samples were received intact and properly refrigerated.

II. GC/MS Instrument Performance Checks

Three decafluorotriphenylphosphine (DFTPP) instrument performance checks were run, representing every shift (12-hour period) on each instrument during which samples or associated standards were analyzed. Results for all three instrument performance checks were acceptable.

III. Calibration

Analyses were performed on a single gas chromatograph/mass spectrometer (GC/MS) system identified as 5972HP70 (HP70). One or more target analytes required manual integration by the analyst in most of the standards associated with these samples. Documentation of each integration performed by the laboratory was provided in the data package; all manual integrations were correctly performed and accurately transcribed to the applicable quantitation report. Internal standard compound acenaphthene-d_{10} was manually integrated in three initial calibration standards, internal standard compound perylene-d_{12} was manually integrated in two sample analyses, surrogate compound phenol-d_5 was manually integrated in a few sample analyses, and surrogate compound 1,2-dichlorobenzene-d_4 was manually integrated in several of the sample analyses. These integrations were all fully documented and verified to be acceptable.

A. Initial Calibration (IC)

One IC (3/17/02 on HP70) was performed in support of the reported sample analyses. Documentation of all individual IC standards analyzed was present in both data packages and average relative response factor (RRF) as well as percent relative standard deviation (%RSD) values were correctly calculated and accurately reported. All average RRFs were above the minimum response criterion (0.05) and all %RSDs were below the maximum acceptance criterion of 30% except for

surrogate compound 2,4,6-tribromophenol (47.5%). Recoveries of this surrogate compound in all reported analyses were acceptable; therefore, no action was taken based on the high %RSD.

B. Continuing Calibration (CC)

Sample analyses were performed under two CC standards. Documentation of both CC standards was present in the applicable data package(s) and RRF as well as percent difference (%D) values were correctly calculated and accurately reported in all cases.

All RRFs were above the 0.05 minimum criterion in both of the CC standards. The following %D values were above the maximum acceptance criterion (25%):

3/24/02-09:19:	benzaldehyde - 33.8% nitrobenzene - 28.4% 4-chloro-3-methylphenol - 25.5% 4-nitroaniline - 27.7% 2,4,6-tribromophenol (surrogate) - 37.4%
3/25/02-09:31:	benzaldehyde - 28.0% 2,4-dinitrophenol - 66.8% 4-nitroaniline - 25.5% pyrene - 32.6%

Results for 2,4-dinitrophenol in GW04CJRE, PW01CJ, SW01DPCJ, SW02CJ, and SW03CJ were qualified as estimated (UJ) because the %D value for this compound in the associated CC standard substantially exceeded the maximum acceptance criterion (i.e., was greater than 50%).

No positive values were reported for the remaining target analytes listed above in the samples associated with the affected CCs, the RRFs were all acceptable (i.e., were greater than 0.05) in the affected CC standards, and the %Ds were not substantially above the acceptance criterion (i.e., were not greater than 50%). In addition, no recovery problems were observed for the 2,4,6-tribromophenol surrogate in the associated sample analyses. Therefore, no additional qualifiers were applied based on the CC standard results.

IV. Blanks

One laboratory method blank (MB: SBLKKV) was prepared and analyzed with the samples in this data set. No target analytes were detected in the MB. One tentatively identified compound (TIC) was reported in SBLKKV; see Section XII for further discussion of this TIC.

One field blank (GW09FBCJ) was submitted with the "GW" samples in this data set. Bis(2-ethylhexyl)phthalate (3 µg/L) was detected in the field blank. Results for bis(2-ethylhexyl)phthalate in GW08DPCJ, GW07CJ, GW04CJ, GW04CJRE, GW06CJ, and GW01CJ were qualified as less than

the sample-specific contract required quantitation limit (CRQL) or less than the reported value (U), whichever was greater, because the reported values were less than ten times the concentration found in the associated field blank. No TICs were detected in GW09FBCJ.

V. Surrogate Recoveries

Recoveries of the eight surrogate compounds in all site samples, spiked samples, and blanks were correctly calculated, accurately reported, and within acceptable limits.

VI. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Sample GW08CJ was prepared and analyzed as an MS/MSD pair. Percent recoveries (%Rs) and relative percent differences (RPDs) between paired recoveries were correctly calculated, accurately reported, and within the acceptance limits documented on Form 3 for all spiked analytes.

Sample SW01CJ was also prepared and analyzed as an MS/MSD pair. Percent recoveries and RPDs between paired recoveries were correctly calculated, accurately reported, and within the acceptance limits documented on Form 3 except for the recovery of 4-nitrophenol in the MSD (82%; QC 10-80%). Since at least one recovery for this analyte was within the acceptance limits and 4-nitrophenol was not detected in the unspiked sample, no action was taken on this basis.

Di-n-butylphthalate was detected at a very low concentration in GW08CJ (0.6 µg/L) but was not found in the MS or MSD analyses, and butylbenzylphthalate was detected at a very low concentration in the MS analysis of GW08CJ (0.2 µg/L) but was not found in the original analysis of the sample or in the MSD analysis. No action was warranted based on the butylbenzylphthalate results; see Section VIII for further discussion of the di-n-butylphthalate result in GW08CJ.

VII. Laboratory Control Sample

No laboratory control sample was analyzed in association with the samples in either data package.

VIII. Field Duplicates

Sample GW08DPCJ was identified as a field duplicate of GW08CJ. After qualifications based on associated field blank contamination, di-n-butylphthalate was reported at a very low concentration in GW08CJ (0.6 µg/L), but was not detected in GW08DPCJ (9 U). The result for di-n-butylphthalate in GW08CJ was qualified as less than the sample-specific CRQL (9 U) due to lack of confirmation at a low concentration in the field duplicate analysis.

No TICs were detected in GW08CJ, but a TIC at 15.89 minutes was reported as an unknown acid ester at an estimated concentration of 2 µg/L in GW08DPCJ. Due to lack of confirmation in the field duplicate analysis, the result for this TIC in GW08DPCJ was rejected (R).

Sample SW01DPCJ was identified as a field duplicate of SW01CJ. No target compounds were detected in either of these samples. No TICs were detected in SW01CJ, but a TIC at 24.54 minutes was reported as unknown at an estimated concentration of 2 µg/L in SW01DPCJ. Due to lack of confirmation in the field duplicate analysis, the result for this TIC in SW01DPCJ was rejected (R).

IX. Internal Standard (IS) Performance

With the exceptions noted below, all IS areas and retention times were within QC limits for the reported sample analyses.

The area of IS perylene-d_{12} in GW04CJ was well below the minimum QC limit documented on the summary form (121410 area counts; QC limits: 340506-1362024). This sample was re-analyzed as required, and the area of this IS in the re-analysis (GW04CJRE) was also low (219487 area counts; QC limits: 268898-1075592). Because the area of perylene-d_{12} in the initial analysis of GW04CJ was excessively low (<25% of the IS area in the associated CC standard), the nondetect results for all compounds quantitated using this IS were rejected (R). The affected compounds are di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. Although low, the area of perylene-d_{12} in GW04CJRE was greater than 25% of the IS area in the associated CC standard. Therefore, results for the above-listed compounds in GW04CJRE were qualified as estimated (UJ).

Because the area of IS perylene-d_{12} in GW04CJRE was improved over the initial analysis, only the re-analysis results are recommended for use, and these results are reported on the data tables in Attachment A. The Form I for the initial sample analysis (GW04CJ) included in Attachment B has been marked "Do Not Use" for clarity.

X. Target Compound Identification

All reported target analytes were correctly identified with acceptable supporting mass spectra present in the applicable data packages.

XI. Compound Quantitation and Reported Detection Limits

Target compound concentrations were correctly calculated and accurately reported for all reported sample analyses, including adjustments for the extraction of slightly more than 1000 mL of all samples.

di-n-Butylphthalate was reported at a very low concentration in GW04CJ (0.3 µg/L), but was not detected in GW04CJRE (10 U). The result for di-n-butylphthalate in GW04CJ was qualified as less than the sample-specific CRQL (10 U) due to lack of confirmation at a low concentration in the sample re-analysis.

Adjustments were not made by the laboratory to the CRQLs to reflect the concentration factors applicable when more than 1000 mL of the sample was extracted. Although lowering the CRQLs under these circumstances is not required by the SOW and reporting the routine CRQLs is not technically incorrect, this adjustment has been made by the laboratory on previous data sets generated for this project. Therefore, to maintain consistency with historical project data, CRQLs for the following samples were adjusted by the validator to reflect extraction of slightly larger sample volumes than specified by the SOW:

Sample ID	Laboratory-Reported CRQLs	Volume Extracted/ Concentration Factor	Validator-Adjusted CRQLs
GW08CJ	10/25 µg/L	1130 mL	9/22 µg/L
GW08DPCJ	10/25 µg/L	1075 mL	9/23 µg/L
GW07CJ	10/25 µg/L	1025 mL	10/24 µg/L
GW03CJ	10/25 µg/L	1050 mL	10/24 µg/L
GW04CJ	10/25 µg/L	1025 mL	10/24 µg/L
GW05CJ	10/25 µg/L	1050 mL	10/24 µg/L
GW06CJ	10/25 µg/L	1075 mL	9/23 µg/L
GW02CJ	10/25 µg/L	1075 mL	9/23 µg/L
GW01CJ	10/25 µg/L	1100 mL	9/23 µg/L
GW09FBCJ	10/25 µg/L	1025 mL	10/24 µg/L
PW01CJ	10/25 µg/L	1135 mL	9/22 µg/L
SW01CJ	10/25 µg/L	1100 mL	9/23 µg/L
SW01DPCJ	10/25 µg/L	1100 mL	9/23 µg/L
SW02CJ	10/25 µg/L	1050 mL	10/24 µg/L
SW03CJ	10/25 µg/L	1125 mL	9/22 µg/L

The data tables in Attachment A list all individual sample analyte results, whether or not the value or qualifier was changed as a result of the validation. Sample-specific CRQLs may be found on the laboratory-generated Form I for each sample (Attachment B) and on the data tables.

XII. Tentatively Identified Compounds (TIC)

One to 30 TICs were reported in 11 of the site samples in this data set; no TICs were found in the remaining samples.

A TIC at 5.59 minutes was reported as trichloropropene at an estimated concentration of 2 µg/L in MB SBLKKV. Results for this TIC in GW01CJ, GW02CJ, GW03CJ, GW04CJRE, GW05CJ, and GW06CJ were rejected (R) as a laboratory artifact due to the presence of this compound at a comparable concentration in the associated MB.

TICs at 7.30 minutes and 10.57 minutes were reported as unknown in GW04CJRE, but neither of these TICs was detected in GW04CJ. Due to lack of confirmation in the initial sample analysis, results for these TICs in GW04CJ were rejected (R).

The complete compound name for the peak at RT 14.13 minutes (1,4,5,6,7,7-hexachloro-bicyclo[2.2.1]hept-5-ene-2,3-dicarboxylic acid) in GW07CJ was added to the Form I-TIC for this sample by the validator.

All reported TICs were appropriately qualified as "J" by the laboratory to emphasize that these are *estimated* concentrations. Those TICs that were appropriately identified as a specific compound based on the library search were also qualified as "N" to emphasize that these are *tentative* identifications. These "J" and "N" qualifiers were not removed by the validator.

The Form I-TIC for each sample, as reported by the laboratory and with qualifiers and corrections noted as described above, are included in Attachment B to this report.

XIII. System Performance

The analytical system appears to have been working within method specifications at the time of these analyses, based on evaluation of the available raw data.

XIV. Documentation

The samples reported in QR1067 and QQ1067 were recorded on two chain of custody (COC) records, both of which were included in both data packages. The following issues were noted:

- Improper corrections were observed on both of the COC records. All corrections to these important legal documents must be made by drawing a single line through the incorrect entry, inserting the correct information, and initialing and dating the change. Obliterations and "write-overs" are not legally defensible.

- A copy of the courier airbill was not included in either data package to document the shipment portion of the sample transfers. The airbill number, however, was documented on both of the COC records.

- Although this approach is specified by the Quality Assurance Project Plan (QAPP), additional sample volumes provided to facilitate the laboratory's analysis of an MS/MSD pair should not be recorded on the COC as separate samples. Instead, a notation should be made indicating the sample for which extra volume has been provided, with the instruction that this sample be used for the MS/MSD analysis. MS/MSD analyses are laboratory-initiated quality control; if not for the logistical need to provide sufficient volume for the multiple analyses involved, MS/MSD pairs would never be mentioned on COC documentation.

These documentation issues do not directly affect the technical validity of the data generated for these samples, however some of them could be problematic if the data were to be used in litigation.

XV. Overall Assessment

Sample results were determined to be valid as reported with the following exceptions:

- Results for 2,4-dinitrophenol in GW04CJRE, PW01CJ, SW01DPCJ, SW02CJ, and SW03CJ were qualified as estimated (UJ) due to an excessively high percent difference value in the associated continuing calibration standard.

- Results for bis(2-ethylhexyl)phthalate in GW08DPCJ, GW07CJ, GW04CJ, GW06CJ, and GW01CJ were qualified as less than the sample-specific CRQL or less than the reported value (U), whichever was greater, due to associated field blank contamination.

- The result for di-n-butylphthalate in GW08CJ was qualified as less than the sample-specific CRQL (9 U) due to lack of confirmation at a low concentration in the field duplicate analysis.

- The result for the TIC reported at 15.89 minutes in GW08DPCJ was rejected (R) due to lack of confirmation in the field duplicate analysis.

- The result for the TIC at 24.54 minutes in SW01DPCJ was rejected (R) due to lack of confirmation in the field duplicate analysis.

- Results for di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene in GW04CJ were rejected (R) due to an excessively low area for the corresponding internal standard (<25% of the associated CC standard area)

- Results for di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene in GW04CJRE were qualified as estimated (UJ) due to a low area for the corresponding internal standard.

- The result for di-n-butylphthalate in GW04CJ was qualified as less than the sample-specific CRQL (10 U) due to lack of confirmation at a low concentration in the sample re-analysis.

- To maintain consistency with historical project data, sample-specific CRQLs for all samples were adjusted by the validator as listed in Section XI to reflect the effective concentration factors applicable because more than 1000 mL of each sample was extracted.

- Results for the TIC reported as trichloropropene and detected at approximately 5.6 minutes in GW01CJ, GW02CJ, GW03CJ, GW04CJRE, GW05CJ, and GW06CJ were rejected (R) due to associated method blank contamination.

- Results for the TICs at 7.30 minutes and 10.57 minutes in GW04CJRE were rejected (R) due to lack of confirmation in the initial sample analysis.

- The complete compound name for the peak at RT 14.13 minutes (1,4,5,6,7,7-hexachloro-bicyclo[2.2.1]hept-5-ene-2,3-dicarboxylic acid) in GW07CJ was added to the Form I-TIC for this sample by the validator.

Only the results recommended for use by the validator have been reported on the data tables included in Attachment A. These represent the re-analysis results for GW04CJ (GW04CJRE) and have been determined to be the most technically usable results for this sample based on the validation effort. In Attachment B, the Form I for the original analysis of GW04CJ has been marked "Do Not Use" for clarity.

Documentation issues are discussed in Section XIII.

This validation report should be considered part of both data packages for all future distributions of the semivolatiles data.

TRILLIUM INC.

ATTACHMENT A

DATA TABLES
SDG Nos. QQ1067 and QR1067
Semivolatiles in Water
Marion Bragg Landfill - March 2002

Marion Bragg Landfill - September 2001 Semivolatiles in Ground and Surface Waters

Results are in ug/L

Collection Point ⟹		MB-1	MB-1D	MB-2	MB-5	MB-6	MB-7	MB-8	MB-9
Sample ID ⟹		GW08CJ	GW08DPCJ	GW07CJ	GW03CJ	GW04CJRE	GW05CJ	GW06CJ	GW02CJ
Lab Sample No. ⟹		QQ1067-8	QQ1067-9	QQ1067-7	QQ1067-3	QQ1067-4	QQ1067-5	QQ1067-6	QQ1067-2
Collection Date. ⟹		3/20/02	3/20/02	3/20/02	3/20/02	3/20/02	3/20/02	3/20/02	3/20/02
Concentration Factor ⟹		0.88	0.93	0.98	0.95	0.98	0.95	0.93	0.93
	CRQL								
Benzaldehyde	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Phenol	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
bis(2-Chloroethyl)ether	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2-Chlorophenol	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2-Methylphenol	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2,2'-oxybis(1-Chloropropane)	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Acetophenone	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
4-Methylphenol	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
N-Nitroso-di-n-propylamine	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Hexachloroethane	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Nitrobenzene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Isophorone	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2-Nitrophenol	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2,4-Dimethylphenol	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
bis(2-Chloroethoxy)methane	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2,4-Dichlorophenol	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Naphthalene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
4-Chloroaniline	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Hexachlorobutadiene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Caprolactam	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
4-Chloro-3-methylphenol	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2-Methylnaphthalene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Hexachlorocyclopentadiene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2,4,6-Trichlorophenol	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2,4,5-Trichlorophenol	25	22 U	23 U	24 U	24 U	24 U	24 U	23 U	23 U
1,1'-Biphenyl	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2-Chloronaphthalene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2-Nitroaniline	25	22 U	23 U	24 U	24 U	24 U	24 U	23 U	23 U
Dimethylphthalate	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2,6-Dinitrotoluene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Acenaphthylene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
3-Nitroaniline	25	22 U	23 U	24 U	24 U	24 U	24 U	23 U	23 U
Acenaphthene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2,4-Dinitrophenol	25	22 U	23 U	24 U	24 U	24 UJ	24 U	23 U	23 U
4-Nitrophenol	25	22 U	23 U	24 U	24 U	24 U	24 U	23 U	23 U
Dibenzofuran	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
2,4-Dinitrotoluene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Diethylphthalate	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Fluorene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
4-Chlorophenyl-phenylether	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
4-Nitroaniline	25	22 U	23 U	24 U	24 U	24 U	24 U	23 U	23 U
4,6-Dinitro-2-methylphenol	25	22 U	23 U	24 U	24 U	24 U	24 U	23 U	23 U
N-nitrosodiphenylamine	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
4-Bromophenyl-phenylether	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Hexachlorobenzene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Atrazine	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Pentachlorophenol	25	22 U	23 U	24 U	24 U	24 U	24 U	23 U	23 U
Phenanthrene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Anthracene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Carbazole	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Di-n-butylphthalate	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Fluoranthene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Pyrene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Butylbenzylphthalate	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
3,3'-Dichlorobenzidine	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Benzo(a)anthracene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
Chrysene	10	9 U	9 U	10 U	10 U	10 U	10 U	9 U	9 U
bis(2-Ethylhexyl)phthalate	10	9 U	9 U	10 U	10 U	10 U	10 U	23 U	9 U
Di-n-octylphthalate	10	9 U	9 U	10 U	10 U	10 UJ	10 U	9 U	9 U
Benzo(b)fluoranthene	10	9 U	9 U	10 U	10 U	10 UJ	10 U	9 U	9 U
Benzo(k)fluoranthene	10	9 U	9 U	10 U	10 U	10 UJ	10 U	9 U	9 U
Benzo(a)pyrene	10	9 U	9 U	10 U	10 U	10 UJ	10 U	9 U	9 U
Indeno(1,2,3-cd)pyrene	10	9 U	9 U	10 U	10 U	10 UJ	10 U	9 U	9 U
Dibenzo(a,h)anthracene	10	9 U	9 U	10 U	10 U	10 UJ	10 U	9 U	9 U
Benzo(g,h,i)perylene	10	9 U	9 U	10 U	10 U	10 UJ	10 U	9 U	9 U

Results are in ug/L

Collection Point ⟹		MB-10	Field Blank	PW-1	SW-1	SW-1D	SW-5	SW-6
Sample ID ⟹		GW01CJ	GW09FBCJ	PW01CJ	SW01CJ	SW01DPCJ	SW02CJ	SW03CJ
Lab Sample No. ⟹		QQ1067-1	QQ1067-10	QR1067-5	QR1067-1	QR1067-2	QR1067-3	QR1067-4
Collection Date. ⟹		3/20/02	3/19/01	3/19/02	3/19/02	3/19/02	3/19/02	3/19/02
Concentration Factor ⟹		0.91	0.98	0.88	0.91	0.91	0.95	0.89
	CRQL							
Benzaldehyde	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Phenol	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
bis(2-Chloroethyl)ether	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2-Chlorophenol	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2-Methylphenol	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2,2'-oxybis(1-Chloropropane)	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Acetophenone	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
4-Methylphenol	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
N-Nitroso-di-n-propylamine	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Hexachloroethane	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Nitrobenzene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Isophorone	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2-Nitrophenol	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2,4-Dimethylphenol	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
bis(2-Chloroethoxy)methane	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2,4-Dichlorophenol	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Naphthalene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
4-Chloroaniline	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Hexachlorobutadiene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Caprolactam	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
4-Chloro-3-methylphenol	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2-Methylnaphthalene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Hexachlorocyclopentadiene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2,4,6-Trichlorophenol	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2,4,5-Trichlorophenol	25	23 U	24 U	22 U	23 U	23 U	24 U	22 U
1,1'-Biphenyl	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2-Chloronaphthalene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2-Nitroaniline	25	23 U	24 U	22 U	23 U	23 U	24 U	22 U
Dimethylphthalate	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2,6-Dinitrotoluene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Acenaphthylene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
3-Nitroaniline	25	23 U	24 U	22 U	23 U	23 U	24 U	22 U
Acenaphthene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2,4-Dinitrophenol	25	23 U	24 U	22 UJ	23 U	23 UJ	24 UJ	22 UJ
4-Nitrophenol	25	23 U	24 U	22 U	23 U	23 U	24 U	22 U
Dibenzofuran	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
2,4-Dinitrotoluene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Diethylphthalate	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Fluorene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
4-Chlorophenyl-phenylether	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
4-Nitroaniline	25	23 U	24 U	22 U	23 U	23 U	24 U	22 U
4,6-Dinitro-2-methylphenol	25	23 U	24 U	22 U	23 U	23 U	24 U	22 U
N-nitrosodiphenylamine	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
4-Bromophenyl-phenylether	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Hexachlorobenzene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Atrazine	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Pentachlorophenol	25	23 U	24 U	22 U	23 U	23 U	24 U	22 U
Phenanthrene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Anthracene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Carbazole	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Di-n-butylphthalate	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Fluoranthene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Pyrene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Butylbenzylphthalate	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
3,3'-Dichlorobenzidine	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Benzo(a)anthracene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Chrysene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
bis(2-Ethylhexyl)phthalate	10	9 U	3 J	9 U	9 U	9 U	5 J	1 J
Di-n-octylphthalate	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Benzo(b)fluoranthene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Benzo(k)fluoranthene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Benzo(a)pyrene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Indeno(1,2,3-cd)pyrene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Dibenzo(a,h)anthracene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U
Benzo(g,h,i)perylene	10	9 U	10 U	9 U	9 U	9 U	10 U	9 U

TRILLIUM INC.

ATTACHMENT B

ORGANIC ANALYSIS DATA SHEETS (Form Is)
SDG Nos. QQ1067 and QR1067
Semivolatiles in Water
Marion Bragg Landfill - March 2002

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-8

Sample wt/vol: 1130 (g/mL) ML Lab File ID: QQ1067-8A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	9 ~~10~~	U
108-95-2	Phenol	1 ~~10~~	U
111-44-4	bis(2-Chloroethyl)ether	1 ~~10~~	U
95-57-8	2-Chlorophenol	1 ~~10~~	U
95-48-7	2-Methylphenol	1 ~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1 ~~10~~	U
98-86-2	Acetophenone	1 ~~10~~	U
106-44-5	4-Methylphenol	1 ~~10~~	U
621-64-7	N-Nitroso-di-n-propylamine	1 ~~10~~	U
67-72-1	Hexachloroethane	1 ~~10~~	U
98-95-3	Nitrobenzene	1 ~~10~~	U
78-59-1	Isophorone	1 ~~10~~	U
88-75-5	2-Nitrophenol	1 ~~10~~	U
105-67-9	2,4-Dimethylphenol	1 ~~10~~	U
111-91-1	bis(2-Chloroethoxy)methane	1 ~~10~~	U
120-83-2	2,4-Dichlorophenol	1 ~~10~~	U
91-20-3	Naphthalene	1 ~~10~~	U
106-47-8	4-Chloroaniline	1 ~~10~~	U
87-68-3	Hexachlorobutadiene	1 ~~10~~	U
105-60-2	Caprolactam	1 ~~10~~	U
59-50-7	4-Chloro-3-methylphenol	1 ~~10~~	U
91-57-6	2-Methylnaphthalene	1 ~~10~~	U
77-47-4	Hexachlorocyclopentadiene	1 ~~10~~	U
88-06-2	2,4,6-Trichlorophenol	1 ~~10~~	U
95-95-4	2,4,5-Trichlorophenol	22 ~~25~~	U
92-52-4	1,1'-Biphenyl	9 ~~10~~	U
91-58-7	2-Chloronaphthalene	1 ~~10~~	U
88-74-4	2-Nitroaniline	22 ~~25~~	U
131-11-3	Dimethylphthalate	9 ~~10~~	U
606-20-2	2,6-Dinitrotoluene	1 ~~10~~	U
208-96-8	Acenaphthylene	1 ~~10~~	U
99-09-2	3-Nitroaniline	22 ~~25~~	U
83-32-9	Acenaphthene	9 ~~10~~	U

L. Dickinson 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-8

Sample wt/vol: 1130 (g/mL) ML Lab File ID: QQ1067-8A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	~~22~~ ~~25~~	U
100-02-7	4-Nitrophenol	~~1~~ ~~25~~	U
132-64-9	Dibenzofuran	~~9~~ ~~10~~	U
121-14-2	2,4-Dinitrotoluene	~~10~~	U
84-66-2	Diethylphthalate	~~10~~	U
86-73-7	Fluorene	~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	~~1~~ ~~10~~	U
100-01-6	4-Nitroaniline	~~22~~ ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	~~1~~ ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	~~9~~ ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	~~10~~	U
118-74-1	Hexachlorobenzene	~~10~~	U
1912-24-9	Atrazine	~~1~~ ~~10~~	U
87-86-5	Pentachlorophenol	~~22~~ 25	U
85-01-8	Phenanthrene	~~9~~ ~~10~~	U
120-12-7	Anthracene	~~10~~	U
86-74-8	Carbazole	~~10~~	U
84-74-2	Di-n-butylphthalate	~~0.6~~	~~J~~ B
206-44-0	Fluoranthene	~~10~~	U
129-00-0	Pyrene	~~10~~	U
85-68-7	Butylbenzylphthalate	~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	~~10~~	U
56-55-3	Benzo(a)anthracene	~~10~~	U
218-01-9	Chrysene	~~10~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~10~~	U
117-84-0	Di-n-octylphthalate	~~10~~	U
205-99-2	Benzo(b)fluoranthene	~~10~~	U
207-08-9	Benzo(k)fluoranthene	~~10~~	U
50-32-8	Benzo(a)pyrene	~~10~~	U
193-39-5	Indeno(1,2,3-cd)pyrene	~~10~~	U
53-70-3	Dibenzo(a,h)anthracene	~~10~~	U
191-24-2	Benzo(g,h,i)perylene	~~1~~ ~~10~~	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson 5/16/02

1G

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW08CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-8

Sample wt/vol: 1130 (g/mL) ML Lab File ID: QQ1067-8A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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29.					
30.					

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-9

Sample wt/vol: 1075 (g/mL) ML Lab File ID: QQ1067-9A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	9 ~~10~~	U
108-95-2	Phenol	~~10~~	U
111-44-4	bis(2-Chloroethyl)ether	~~10~~	U
95-57-8	2-Chlorophenol	~~10~~	U
95-48-7	2-Methylphenol	~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)	~~10~~	U
98-86-2	Acetophenone	~~10~~	U
106-44-5	4-Methylphenol	~~10~~	U
621-64-7	N-Nitroso-di-n-propylamine	~~10~~	U
67-72-1	Hexachloroethane	~~10~~	U
98-95-3	Nitrobenzene	~~10~~	U
78-59-1	Isophorone	~~10~~	U
88-75-5	2-Nitrophenol	~~10~~	U
105-67-9	2,4-Dimethylphenol	~~10~~	U
111-91-1	bis(2-Chloroethoxy)methane	~~10~~	U
120-83-2	2,4-Dichlorophenol	~~10~~	U
91-20-3	Naphthalene	~~10~~	U
106-47-8	4-Chloroaniline	~~10~~	U
87-68-3	Hexachlorobutadiene	~~10~~	U
105-60-2	Caprolactam	~~10~~	U
59-50-7	4-Chloro-3-methylphenol	~~10~~	U
91-57-6	2-Methylnaphthalene	~~10~~	U
77-47-4	Hexachlorocyclopentadiene	~~10~~	U
88-06-2	2,4,6-Trichlorophenol	1 ~~10~~	U
95-95-4	2,4,5-Trichlorophenol	23 ~~25~~	U
92-52-4	1,1'-Biphenyl	9 ~~10~~	U
91-58-7	2-Chloronaphthalene	1 ~~10~~	U
88-74-4	2-Nitroaniline	23 ~~25~~	U
131-11-3	Dimethylphthalate	9 ~~10~~	U
606-20-2	2,6-Dinitrotoluene	1 ~~10~~	U
208-96-8	Acenaphthylene	1 ~~10~~	U
99-09-2	3-Nitroaniline	23 ~~25~~	U
83-32-9	Acenaphthene	9 ~~10~~	U

E. Dickinson 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-9

Sample wt/vol: 1075 (g/mL) ML Lab File ID: QQ1067-9A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	23 ~~25~~	U
100-02-7	4-Nitrophenol	1 ~~25~~	U
132-64-9	Dibenzofuran	9 ~~10~~	U
121-14-2	2,4-Dinitrotoluene	| ~~10~~	U
84-66-2	Diethylphthalate	| ~~10~~	U
86-73-7	Fluorene	| ~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	1 ~~10~~	U
100-01-6	4-Nitroaniline	23 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	1 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	9 ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	| ~~10~~	U
118-74-1	Hexachlorobenzene	| ~~10~~	U
1912-24-9	Atrazine	1 ~~10~~	U
87-86-5	Pentachlorophenol	23 ~~25~~	U
85-01-8	Phenanthrene	9 ~~10~~	U
120-12-7	Anthracene	| ~~10~~	U
86-74-8	Carbazole	| ~~10~~	U
84-74-2	Di-n-butylphthalate	| ~~10~~	U
206-44-0	Fluoranthene	| ~~10~~	U
129-00-0	Pyrene	| ~~10~~	U
85-68-7	Butylbenzylphthalate	| ~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	| ~~10~~	U
56-55-3	Benzo(a)anthracene	| ~~10~~	U
218-01-9	Chrysene	| ~~10~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	| ~~2~~	J H
117-84-0	Di-n-octylphthalate	| ~~10~~	U
205-99-2	Benzo(b)fluoranthene	| ~~10~~	U
207-08-9	Benzo(k)fluoranthene	| ~~10~~	U
50-32-8	Benzo(a)pyrene	| ~~10~~	U
193-39-5	Indeno(1,2,3-cd)pyrene	| ~~10~~	U
53-70-3	Dibenzo(a,h)anthracene	| ~~10~~	U
191-24-2	Benzo(g,h,i)perylene	1 ~~10~~	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson
5/16/02

1G

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: GW08DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-9

Sample wt/vol: 1075 (g/mL) ML Lab File ID: QQ1067-9A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N) ___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/24/02

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		~~UNKNOWN ACID ESTER~~	~~15.89~~	~~2~~	~~J~~ R
2.					
3.					
4.			L. Dickinson	5/16/02	
5.					
6.					
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9.					
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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW07CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-7

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-7A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	24 ~~25~~	U
92-52-4	1,1'-Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	24 ~~25~~	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	24 ~~25~~	U
83-32-9	Acenaphthene	10	U

E. Dickinson
5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW07CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-7

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-7A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	24 ~~25~~	U
100-02-7	4-Nitrophenol	24 ~~25~~	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	24 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	24 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	24 ~~25~~	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10 2	J U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

K. Dickinson

1G

EPA SAMPLE NO.

GW07CJ

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-7

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-7A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N) ___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/24/02

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		SULFUR	11.51	3	J
2.	115-28-6	~~BICYCLO[2.2.1]HEPT-5-ENE-2,3~~	14.13	15	NJ
3.		UNKNOWN	14.78	8	J
4.					
5.					
6.		→ 1,4,5,6,7,7-hexachloro-bicyclo[2.2.1]hept-5-ene-2,3-dicarboxylic acid			
7.					
8.					
9.					
10.		C. Dickinson 5/16/02			
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW03CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-3

Sample wt/vol: 1050 (g/mL) ML Lab File ID: QQ1067-3A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	24 ~~25~~	U
92-52-4	1,1'-Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	24 ~~25~~	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	24 ~~25~~	U
83-32-9	Acenaphthene	10	U

E. Dickinson 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW03CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-3

Sample wt/vol: 1050 (g/mL) ML Lab File ID: QQ1067-3A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	24 ~~25~~	U
100-02-7	4-Nitrophenol	24 ~~25~~	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	24 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	24 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	24 ~~25~~	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

L. Dickinson
5/16/02

1G

EPA SAMPLE NO.

GW03CJ

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-3

Sample wt/vol: 1050 (g/mL) ML Lab File ID: QQ1067-3A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	5.47	2	J
2.		~~TRICHLOROPROPENE (BC)~~	~~5.59~~	~~5~~	~~JB~~ R
3.		SULFUR	11.51	3	J
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
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30.					

L. Dickinson 5/16/02

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW04CJRE

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-4

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-4JA70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	24 ~~25~~	U
92-52-4	1,1'-Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	24 ~~25~~	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	24 ~~25~~	U
83-32-9	Acenaphthene	10	U

E. Dickinson 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW04CJRE

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-4

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-4JA70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	24 ~~25~~	~~U~~ UJ
100-02-7	4-Nitrophenol	24 ~~25~~	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	24 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	24 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	24 ~~25~~	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10 ~~1~~	~~U~~ UJ
117-84-0	Di-n-octylphthalate	10	~~U~~ UJ
205-99-2	Benzo(b)fluoranthene	10	~~U~~
207-08-9	Benzo(k)fluoranthene	10	~~U~~
50-32-8	Benzo(a)pyrene	10	~~U~~
193-39-5	Indeno(1,2,3-cd)pyrene	10	~~U~~
53-70-3	Dibenzo(a,h)anthracene	10	~~U~~
191-24-2	Benzo(g,h,i)perylene	10	~~U~~

(1) - Cannot be separated from Diphenylamine

E. Dickinson
5/16/02

1G

EPA SAMPLE NO.

GW04CJRE

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-4

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-4JA70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N) ___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 8 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		~~TRICHLOROPROPENE (BC)~~	~~5.59~~	~~2~~	~~JB~~ R
2.		UNKNOWN	6.20	3	J
3.		UNKNOWN	6.78	3	J
4.		~~UNKNOWN~~	~~7.30~~	~~3~~	~~J~~ R
5.		~~UNKNOWN~~	~~10.57~~	~~3~~	~~J~~ R
6.	934-34-9	2(3H)-BENZOTHIAZOLONE	12.38	10	NJ
7.		UNKNOWN	14.13	4	J
8.		UNKNOWN	15.96	3	J
9.					
10.					
11.		E. Dickinson	5/16/02		
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW04CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-4

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-4A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	24 ~~25~~	U
92-52-4	1,1'-Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	24 ~~25~~	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	24 ~~25~~	U
83-32-9	Acenaphthene	10	U

DO NOT USE & Diluted 5/16/02

ECD 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW04CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-4

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-4A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	24 ~~25~~	U
100-02-7	4-Nitrophenol	24 ~~25~~	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	24 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	24 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	24 ~~25~~	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10 ~~0.3~~	~~J~~ U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10 ~~0.8~~	~~J~~ U
117-84-0	Di-n-octylphthalate	~~10~~	~~U~~ R
205-99-2	Benzo(b)fluoranthene	~~10~~	~~U~~
207-08-9	Benzo(k)fluoranthene	~~10~~	~~U~~
50-32-8	Benzo(a)pyrene	~~10~~	~~U~~
193-39-5	Indeno(1,2,3-cd)pyrene	~~10~~	~~U~~
53-70-3	Dibenzo(a,h)anthracene	~~10~~	~~U~~
191-24-2	Benzo(g,h,i)perylene	~~10~~	~~U~~

(1) - Cannot be separated from Diphenylamine

DO NOT USE for Diphenylamine 5/16/02

KLD 5/16/02

1G

EPA SAMPLE NO.

GW04CJ

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-4

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-4A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 6 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	6.20	2	J
2.		UNKNOWN	6.78	2	J
3.	934-34-9	2(3H)-BENZOTHIAZOLONE	12.37	8	NJ
4.		UNKNOWN	13.41	2	J
5.		UNKNOWN	14.13	3	J
6.		UNKNOWN	15.96	2	J
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DO NOT USE for Dilutions 5/16/02

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW05CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-5

Sample wt/vol: 1050 (g/mL) ML Lab File ID: QQ1067-5A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	24 ~~25~~	U
92-52-4	1,1'-Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	24 ~~25~~	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	24 ~~25~~	U
83-32-9	Acenaphthene	10	U

E. Dickinson
5/16/02

1D

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

GW05CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-5

Sample wt/vol: 1050 (g/mL) ML Lab File ID: QQ1067-5A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	24 ~~25~~	U
100-02-7	4-Nitrophenol	24 ~~25~~	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	24 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	24 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	24 ~~25~~	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson
5/16/02

1G

EPA SAMPLE NO.

GW05CJ

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-5

Sample wt/vol: 1050 (g/mL) ML Lab File ID: QQ1067-5A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 4 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	5.47	2	J
2.		~~TRICHLOROPROPENE (BC)~~	~~5.60~~	~~5~~	~~JB~~ R
3.		UNKNOWN	11.26	3	J
4.		UNKNOWN ACID ESTER	15.90	4	J
5.					
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E. Dikinson 5/16/02

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW06CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-6

Sample wt/vol: 1075 (g/mL) ML Lab File ID: QQ1067-6A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	9 ~~10~~	U
108-95-2	Phenol	1 ~~10~~	U
111-44-4	bis(2-Chloroethyl)ether	1 ~~10~~	U
95-57-8	2-Chlorophenol	1 ~~10~~	U
95-48-7	2-Methylphenol	1 ~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1 ~~10~~	U
98-86-2	Acetophenone	1 ~~10~~	U
106-44-5	4-Methylphenol	1 ~~10~~	U
621-64-7	N-Nitroso-di-n-propylamine	1 ~~10~~	U
67-72-1	Hexachloroethane	1 ~~10~~	U
98-95-3	Nitrobenzene	1 ~~10~~	U
78-59-1	Isophorone	1 ~~10~~	U
88-75-5	2-Nitrophenol	1 ~~10~~	U
105-67-9	2,4-Dimethylphenol	1 ~~10~~	U
111-91-1	bis(2-Chloroethoxy)methane	1 ~~10~~	U
120-83-2	2,4-Dichlorophenol	1 ~~10~~	U
91-20-3	Naphthalene	1 ~~10~~	U
106-47-8	4-Chloroaniline	1 ~~10~~	U
87-68-3	Hexachlorobutadiene	1 ~~10~~	U
105-60-2	Caprolactam	1 ~~10~~	U
59-50-7	4-Chloro-3-methylphenol	1 ~~10~~	U
91-57-6	2-Methylnaphthalene	1 ~~10~~	U
77-47-4	Hexachlorocyclopentadiene	1 ~~10~~	U
88-06-2	2,4,6-Trichlorophenol	1 ~~10~~	U
95-95-4	2,4,5-Trichlorophenol	23 ~~25~~	U
92-52-4	1,1'-Biphenyl	9 ~~10~~	U
91-58-7	2-Chloronaphthalene	1 ~~10~~	U
88-74-4	2-Nitroaniline	23 ~~25~~	U
131-11-3	Dimethylphthalate	9 ~~10~~	U
606-20-2	2,6-Dinitrotoluene	1 ~~10~~	U
208-96-8	Acenaphthylene	1 ~~10~~	U
99-09-2	3-Nitroaniline	23 ~~25~~	U
83-32-9	Acenaphthene	9 ~~10~~	U

L. Dickinson 5/16/02

1D

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

GW06CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-6

Sample wt/vol: 1075 (g/mL) ML Lab File ID: QQ1067-6A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	23 ~~25~~	U
100-02-7	4-Nitrophenol	1 ~~25~~	U
132-64-9	Dibenzofuran	9 ~~10~~	U
121-14-2	2,4-Dinitrotoluene	~~10~~	U
84-66-2	Diethylphthalate	~~10~~	U
86-73-7	Fluorene	~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	1 ~~10~~	U
100-01-6	4-Nitroaniline	23 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	1 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	9 ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	~~10~~	U
118-74-1	Hexachlorobenzene	~~10~~	U
1912-24-9	Atrazine	1 ~~10~~	U
87-86-5	Pentachlorophenol	23 ~~25~~	U
85-01-8	Phenanthrene	9 ~~10~~	U
120-12-7	Anthracene	~~10~~	U
86-74-8	Carbazole	~~10~~	U
84-74-2	Di-n-butylphthalate	~~10~~	U
206-44-0	Fluoranthene	~~10~~	U
129-00-0	Pyrene	~~10~~	U
85-68-7	Butylbenzylphthalate	~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	~~10~~	U
56-55-3	Benzo(a)anthracene	~~10~~	U
218-01-9	Chrysene	1 ~~10~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	23	U
117-84-0	Di-n-octylphthalate	9 ~~10~~	U
205-99-2	Benzo(b)fluoranthene	~~10~~	U
207-08-9	Benzo(k)fluoranthene	~~10~~	U
50-32-8	Benzo(a)pyrene	~~10~~	U
193-39-5	Indeno(1,2,3-cd)pyrene	~~10~~	U
53-70-3	Dibenzo(a,h)anthracene	~~10~~	U
191-24-2	Benzo(g,h,i)perylene	1 ~~10~~	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson

5/16/02

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GW06CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-6

Sample wt/vol: 1075 (g/mL) ML Lab File ID: QQ1067-6A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 30 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	5.46	3	J
2.		~~TRICHLOROPROPENE (BC)~~	~~5.59~~	~~5~~	~~JB~~ R
3.		UNKNOWN	5.74	6	J
4.		UNKNOWN	6.78	4	J
5.		UNKNOWN	10.27	3	J
6.		UNKNOWN	10.42	5	J
7.		UNKNOWN	11.11	3	J
8.		UNKNOWN	11.18	3	J
9.		UNKNOWN	11.98	4	J
10.		UNKNOWN	12.10	4	J
11.		UNKNOWN	12.68	3	J
12.		UNKNOWN	12.73	2	J
13.		UNKNOWN	12.86	8	J
14.		UNKNOWN	12.90	3	J
15.		UNKNOWN	13.60	2	J
16.		UNKNOWN	13.85	8	J
17.		UNKNOWN	14.13	11	J
18.		UNKNOWN	14.17	4	J
19.		UNKNOWN	14.21	4	J
20.		UNKNOWN	14.79	22	J
21.		UNKNOWN	14.95	3	J
22.		UNKNOWN	14.98	5	J
23.		UNKNOWN	15.43	3	J
24.		UNKNOWN	15.84	5	J
25.		UNKNOWN	15.88	4	J
26.		UNKNOWN ACID ESTER	15.90	5	J
27.		UNKNOWN	16.23	5	J
28.		UNKNOWN	16.91	2	J
29.		UNKNOWN	18.00	2	J
30.		UNKNOWN	18.33	3	J

FORM I SV-TIC

E. Dickinson 5/16/02

OLM04.2

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW02CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-2

Sample wt/vol: 1075 (g/mL) ML Lab File ID: QQ1067-2A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
100-52-7	Benzaldehyde	9	~~10~~	U
108-95-2	Phenol		~~10~~	U
111-44-4	bis(2-Chloroethyl)ether		~~10~~	U
95-57-8	2-Chlorophenol		~~10~~	U
95-48-7	2-Methylphenol		~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)		~~10~~	U
98-86-2	Acetophenone		~~10~~	U
106-44-5	4-Methylphenol		~~10~~	U
621-64-7	N-Nitroso-di-n-propylamine		~~10~~	U
67-72-1	Hexachloroethane		~~10~~	U
98-95-3	Nitrobenzene		~~10~~	U
78-59-1	Isophorone		~~10~~	U
88-75-5	2-Nitrophenol		~~10~~	U
105-67-9	2,4-Dimethylphenol		~~10~~	U
111-91-1	bis(2-Chloroethoxy)methane		~~10~~	U
120-83-2	2,4-Dichlorophenol		~~10~~	U
91-20-3	Naphthalene		~~10~~	U
106-47-8	4-Chloroaniline		~~10~~	U
87-68-3	Hexachlorobutadiene		~~10~~	U
105-60-2	Caprolactam		~~10~~	U
59-50-7	4-Chloro-3-methylphenol		~~10~~	U
91-57-6	2-Methylnaphthalene		~~10~~	U
77-47-4	Hexachlorocyclopentadiene		~~10~~	U
88-06-2	2,4,6-Trichlorophenol	1	~~10~~	U
95-95-4	2,4,5-Trichlorophenol	23	~~25~~	U
92-52-4	1,1'-Biphenyl	9	~~10~~	U
91-58-7	2-Chloronaphthalene	1	~~10~~	U
88-74-4	2-Nitroaniline	23	~~25~~	U
131-11-3	Dimethylphthalate	9	~~10~~	U
606-20-2	2,6-Dinitrotoluene		~~10~~	U
208-96-8	Acenaphthylene	1	~~10~~	U
99-09-2	3-Nitroaniline	23	~~25~~	U
83-32-9	Acenaphthene	9	~~10~~	U

L. Dickinson 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: GW02CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-2

Sample wt/vol: 1075 (g/mL) ML Lab File ID: QQ1067-2A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	23 ~~25~~	U
100-02-7	4-Nitrophenol	1 ~~25~~	U
132-64-9	Dibenzofuran	9 ~~10~~	U
121-14-2	2,4-Dinitrotoluene	~~10~~	U
84-66-2	Diethylphthalate	~~10~~	U
86-73-7	Fluorene	~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	~~10~~	U
100-01-6	4-Nitroaniline	23 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	23 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	9 ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	~~10~~	U
118-74-1	Hexachlorobenzene	~~10~~	U
1912-24-9	Atrazine	~~10~~	U
87-86-5	Pentachlorophenol	23 ~~25~~	U
85-01-8	Phenanthrene	9 ~~10~~	U
120-12-7	Anthracene	~~10~~	U
86-74-8	Carbazole	~~10~~	U
84-74-2	Di-n-butylphthalate	~~10~~	U
206-44-0	Fluoranthene	~~10~~	U
129-00-0	Pyrene	~~10~~	U
85-68-7	Butylbenzylphthalate	~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	~~10~~	U
56-55-3	Benzo(a)anthracene	~~10~~	U
218-01-9	Chrysene	~~10~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~10~~	U
117-84-0	Di-n-octylphthalate	~~10~~	U
205-99-2	Benzo(b)fluoranthene	~~10~~	U
207-08-9	Benzo(k)fluoranthene	~~10~~	U
50-32-8	Benzo(a)pyrene	~~10~~	U
193-39-5	Indeno(1,2,3-cd)pyrene	~~10~~	U
53-70-3	Dibenzo(a,h)anthracene	~~10~~	U
191-24-2	Benzo(g,h,i)perylene	~~10~~	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson
5/16/02

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

GW02CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-2

Sample wt/vol: 1075 (g/mL) ML Lab File ID: QQ1067-2A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		~~TRICHLOROPROPENE (BC)~~	~~5.59~~	~~3~~	~~JB~~ R
2.					
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4.					
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E. Dickinson 5/16/02

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-1

Sample wt/vol: 1100 (g/mL) ML Lab File ID: QQ1067-1A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	9 ~~10~~	U
108-95-2	Phenol	~~10~~	U
111-44-4	bis(2-Chloroethyl)ether	~~10~~	U
95-57-8	2-Chlorophenol	~~10~~	U
95-48-7	2-Methylphenol	~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)	~~10~~	U
98-86-2	Acetophenone	~~10~~	U
106-44-5	4-Methylphenol	~~10~~	U
621-64-7	N-Nitroso-di-n-propylamine	~~10~~	U
67-72-1	Hexachloroethane	~~10~~	U
98-95-3	Nitrobenzene	~~10~~	U
78-59-1	Isophorone	~~10~~	U
88-75-5	2-Nitrophenol	~~10~~	U
105-67-9	2,4-Dimethylphenol	~~10~~	U
111-91-1	bis(2-Chloroethoxy)methane	~~10~~	U
120-83-2	2,4-Dichlorophenol	~~10~~	U
91-20-3	Naphthalene	~~10~~	U
106-47-8	4-Chloroaniline	~~10~~	U
87-68-3	Hexachlorobutadiene	~~10~~	U
105-60-2	Caprolactam	~~10~~	U
59-50-7	4-Chloro-3-methylphenol	~~10~~	U
91-57-6	2-Methylnaphthalene	~~10~~	U
77-47-4	Hexachlorocyclopentadiene	~~10~~	U
88-06-2	2,4,6-Trichlorophenol	~~10~~	U
95-95-4	2,4,5-Trichlorophenol	23 ~~25~~	U
92-52-4	1,1'-Biphenyl	9 ~~10~~	U
91-58-7	2-Chloronaphthalene	~~10~~	U
88-74-4	2-Nitroaniline	23 ~~25~~	U
131-11-3	Dimethylphthalate	9 ~~10~~	U
606-20-2	2,6-Dinitrotoluene	~~10~~	U
208-96-8	Acenaphthylene	~~10~~	U
99-09-2	3-Nitroaniline	23 ~~25~~	U
83-32-9	Acenaphthene	9 ~~10~~	U

L. Dickinson
5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-1

Sample wt/vol: 1100 (g/mL) ML Lab File ID: QQ1067-1A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	23 ~~25~~	U
100-02-7	4-Nitrophenol	J ~~25~~	U
132-64-9	Dibenzofuran	9 ~~10~~	U
121-14-2	2,4-Dinitrotoluene	~~10~~	U
84-66-2	Diethylphthalate	~~10~~	U
86-73-7	Fluorene	~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	~~10~~	U
100-01-6	4-Nitroaniline	23 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	J ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	9 ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	~~10~~	U
118-74-1	Hexachlorobenzene	~~10~~	U
1912-24-9	Atrazine	~~10~~	U
87-86-5	Pentachlorophenol	~~23~~ ~~25~~	U
85-01-8	Phenanthrene	9 ~~10~~	U
120-12-7	Anthracene	~~10~~	U
86-74-8	Carbazole	~~10~~	U
84-74-2	Di-n-butylphthalate	~~10~~	U
206-44-0	Fluoranthene	~~10~~	U
129-00-0	Pyrene	~~10~~	U
85-68-7	Butylbenzylphthalate	~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	~~10~~	U
56-55-3	Benzo(a)anthracene	~~10~~	U
218-01-9	Chrysene	~~10~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~0.6~~	J U
117-84-0	Di-n-octylphthalate	~~10~~	U
205-99-2	Benzo(b)fluoranthene	~~10~~	U
207-08-9	Benzo(k)fluoranthene	~~10~~	U
50-32-8	Benzo(a)pyrene	~~10~~	U
193-39-5	Indeno(1,2,3-cd)pyrene	~~10~~	U
53-70-3	Dibenzo(a,h)anthracene	~~10~~	U
191-24-2	Benzo(g,h,i)perylene	~~10~~	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson
5/16/02

1G

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-1

Sample wt/vol: 1100 (g/mL) ML Lab File ID: QQ1067-1A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		~~TRICHLOROPROPENE (BC)~~	5.59	2	~~JB~~ R
2.					
3.					
4.		E. Dichunion		5/16/02	
5.					
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29.					
30.					

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW09FBCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-10

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-10A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	24 ~~25~~	U
92-52-4	1,1'-Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	24 ~~25~~	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	24 ~~25~~	U
83-32-9	Acenaphthene	10	U

B. Dickinson
5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW09FBCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-10

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-10A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	~~24~~ ~~25~~	U
100-02-7	4-Nitrophenol	~~24~~ ~~25~~	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	~~24~~ ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	~~24~~ ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	~~24~~ ~~25~~	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	3	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson 5/16/02

1G

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW09FBCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix: (soil/water) WATER Lab Sample ID: QQ1067-10

Sample wt/vol: 1025 (g/mL) ML Lab File ID: QQ1067-10A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-5

Sample wt/vol: 1135 (g/mL) ML Lab File ID: QR1067-5A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	9 ~~10~~	U
108-95-2	Phenol	~~10~~	U
111-44-4	bis(2-Chloroethyl)ether	~~10~~	U
95-57-8	2-Chlorophenol	~~10~~	U
95-48-7	2-Methylphenol	~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)	~~10~~	U
98-86-2	Acetophenone	~~10~~	U
106-44-5	4-Methylphenol	~~10~~	U
621-64-7	N-Nitroso-di-n-propylamine	~~10~~	U
67-72-1	Hexachloroethane	~~10~~	U
98-95-3	Nitrobenzene	~~10~~	U
78-59-1	Isophorone	~~10~~	U
88-75-5	2-Nitrophenol	~~10~~	U
105-67-9	2,4-Dimethylphenol	~~10~~	U
111-91-1	bis(2-Chloroethoxy)methane	~~10~~	U
120-83-2	2,4-Dichlorophenol	~~10~~	U
91-20-3	Naphthalene	~~10~~	U
106-47-8	4-Chloroaniline	~~10~~	U
87-68-3	Hexachlorobutadiene	~~10~~	U
105-60-2	Caprolactam	~~10~~	U
59-50-7	4-Chloro-3-methylphenol	~~10~~	U
91-57-6	2-Methylnaphthalene	~~10~~	U
77-47-4	Hexachlorocyclopentadiene	~~10~~	U
88-06-2	2,4,6-Trichlorophenol	~~10~~	U
95-95-4	2,4,5-Trichlorophenol	22 ~~25~~	U
92-52-4	1,1'-Biphenyl	9 ~~10~~	U
91-58-7	2-Chloronaphthalene	~~10~~	U
88-74-4	2-Nitroaniline	22 ~~25~~	U
131-11-3	Dimethylphthalate	9 ~~10~~	U
606-20-2	2,6-Dinitrotoluene	~~10~~	U
208-96-8	Acenaphthylene	~~10~~	U
99-09-2	3-Nitroaniline	22 ~~25~~	U
83-32-9	Acenaphthene	9 ~~10~~	U

E. Dickinson 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-5

Sample wt/vol: 1135 (g/mL) ML Lab File ID: QR1067-5A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	22 ~~25~~	~~U~~ UJ
100-02-7	4-Nitrophenol	1 ~~25~~	U
132-64-9	Dibenzofuran	9 ~~10~~	U
121-14-2	2,4-Dinitrotoluene	| ~~10~~	U
84-66-2	Diethylphthalate	| ~~10~~	U
86-73-7	Fluorene	| ~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	| ~~10~~	U
100-01-6	4-Nitroaniline	22 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	1 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	9 ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	| ~~10~~	U
118-74-1	Hexachlorobenzene	| ~~10~~	U
1912-24-9	Atrazine	| ~~10~~	U
87-86-5	Pentachlorophenol	22 ~~25~~	U
85-01-8	Phenanthrene	9 ~~10~~	U
120-12-7	Anthracene	| ~~10~~	U
86-74-8	Carbazole	| ~~10~~	U
84-74-2	Di-n-butylphthalate	| ~~10~~	U
206-44-0	Fluoranthene	| ~~10~~	U
129-00-0	Pyrene	| ~~10~~	U
85-68-7	Butylbenzylphthalate	| ~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	| ~~10~~	U
56-55-3	Benzo(a)anthracene	| ~~10~~	U
218-01-9	Chrysene	| ~~10~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	| ~~10~~	U
117-84-0	Di-n-octylphthalate	| ~~10~~	U
205-99-2	Benzo(b)fluoranthene	| ~~10~~	U
207-08-9	Benzo(k)fluoranthene	| ~~10~~	U
50-32-8	Benzo(a)pyrene	| ~~10~~	U
193-39-5	Indeno(1,2,3-cd)pyrene	| ~~10~~	U
53-70-3	Dibenzo(a,h)anthracene	| ~~10~~	U
191-24-2	Benzo(g,h,i)perylene	| ~~10~~	U

(1) - Cannot be separated from Diphenylamine

E. Diekmann
5/16/02

1G

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

PW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-5

Sample wt/vol: 1135 (g/mL) ML Lab File ID: QR1067-5A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	21.16	2	J
2.					
3.					
4.					
5.					
6.					
7.					
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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-1

Sample wt/vol: 1100 (g/mL) ML Lab File ID: QR1067-1A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	9 ~~10~~	U
108-95-2	Phenol	~~10~~	U
111-44-4	bis(2-Chloroethyl)ether	~~10~~	U
95-57-8	2-Chlorophenol	~~10~~	U
95-48-7	2-Methylphenol	~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)	~~10~~	U
98-86-2	Acetophenone	~~10~~	U
106-44-5	4-Methylphenol	~~10~~	U
621-64-7	N-Nitroso-di-n-propylamine	~~10~~	U
67-72-1	Hexachloroethane	~~10~~	U
98-95-3	Nitrobenzene	~~10~~	U
78-59-1	Isophorone	~~10~~	U
88-75-5	2-Nitrophenol	~~10~~	U
105-67-9	2,4-Dimethylphenol	~~10~~	U
111-91-1	bis(2-Chloroethoxy)methane	~~10~~	U
120-83-2	2,4-Dichlorophenol	~~10~~	U
91-20-3	Naphthalene	~~10~~	U
106-47-8	4-Chloroaniline	~~10~~	U
87-68-3	Hexachlorobutadiene	~~10~~	U
105-60-2	Caprolactam	~~10~~	U
59-50-7	4-Chloro-3-methylphenol	~~10~~	U
91-57-6	2-Methylnaphthalene	~~10~~	U
77-47-4	Hexachlorocyclopentadiene	~~10~~	U
88-06-2	2,4,6-Trichlorophenol	1 ~~10~~	U
95-95-4	2,4,5-Trichlorophenol	23 ~~25~~	U
92-52-4	1,1'-Biphenyl	9 ~~10~~	U
91-58-7	2-Chloronaphthalene	1 ~~10~~	U
88-74-4	2-Nitroaniline	23 ~~25~~	U
131-11-3	Dimethylphthalate	9 ~~10~~	U
606-20-2	2,6-Dinitrotoluene	1 ~~10~~	U
208-96-8	Acenaphthylene	1 ~~10~~	U
99-09-2	3-Nitroaniline	23 ~~25~~	U
83-32-9	Acenaphthene	9 ~~10~~	U

E. Dickinson
5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: SW01CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-1

Sample wt/vol: 1100 (g/mL) ML Lab File ID: QR1067-1A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	23 ~~25~~	U
100-02-7	4-Nitrophenol	1 ~~25~~	U
132-64-9	Dibenzofuran	9 ~~10~~	U
121-14-2	2,4-Dinitrotoluene	~~10~~	U
84-66-2	Diethylphthalate	~~10~~	U
86-73-7	Fluorene	~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	~~10~~	U
100-01-6	4-Nitroaniline	20 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	1 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	9 ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	~~10~~	U
118-74-1	Hexachlorobenzene	~~10~~	U
1912-24-9	Atrazine	~~10~~	U
87-86-5	Pentachlorophenol	23 ~~25~~	U
85-01-8	Phenanthrene	9 ~~10~~	U
120-12-7	Anthracene	~~10~~	U
86-74-8	Carbazole	~~10~~	U
84-74-2	Di-n-butylphthalate	~~10~~	U
206-44-0	Fluoranthene	~~10~~	U
129-00-0	Pyrene	~~10~~	U
85-68-7	Butylbenzylphthalate	~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	~~10~~	U
56-55-3	Benzo(a)anthracene	~~10~~	U
218-01-9	Chrysene	~~10~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~10~~	U
117-84-0	Di-n-octylphthalate	~~10~~	U
205-99-2	Benzo(b)fluoranthene	~~10~~	U
207-08-9	Benzo(k)fluoranthene	~~10~~	U
50-32-8	Benzo(a)pyrene	~~10~~	U
193-39-5	Indeno(1,2,3-cd)pyrene	~~10~~	U
53-70-3	Dibenzo(a,h)anthracene	~~10~~	U
191-24-2	Benzo(g,h,i)perylene	~~10~~	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson
5/16/02

1G

EPA SAMPLE NO.

SW01CJ

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-1

Sample wt/vol: 1100 (g/mL) ML Lab File ID: QR1067-1A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/24/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
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16.					
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25.					
26.					
27.					
28.					
29.					
30.					

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW01DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-2

Sample wt/vol: 1100 (g/mL) ML Lab File ID: QR1067-2A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	9 ~~10~~	U
108-95-2	Phenol	1 ~~10~~	U
111-44-4	bis(2-Chloroethyl)ether	1 ~~10~~	U
95-57-8	2-Chlorophenol	1 ~~10~~	U
95-48-7	2-Methylphenol	1 ~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1 ~~10~~	U
98-86-2	Acetophenone	1 ~~10~~	U
106-44-5	4-Methylphenol	1 ~~10~~	U
621-64-7	N-Nitroso-di-n-propylamine	1 ~~10~~	U
67-72-1	Hexachloroethane	1 ~~10~~	U
98-95-3	Nitrobenzene	1 ~~10~~	U
78-59-1	Isophorone	1 ~~10~~	U
88-75-5	2-Nitrophenol	1 ~~10~~	U
105-67-9	2,4-Dimethylphenol	1 ~~10~~	U
111-91-1	bis(2-Chloroethoxy)methane	1 ~~10~~	U
120-83-2	2,4-Dichlorophenol	1 ~~10~~	U
91-20-3	Naphthalene	1 ~~10~~	U
106-47-8	4-Chloroaniline	1 ~~10~~	U
87-68-3	Hexachlorobutadiene	1 ~~10~~	U
105-60-2	Caprolactam	1 ~~10~~	U
59-50-7	4-Chloro-3-methylphenol	1 ~~10~~	U
91-57-6	2-Methylnaphthalene	1 ~~10~~	U
77-47-4	Hexachlorocyclopentadiene	1 ~~10~~	U
88-06-2	2,4,6-Trichlorophenol	1 ~~10~~	U
95-95-4	2,4,5-Trichlorophenol	23 ~~25~~	U
92-52-4	1,1'-Biphenyl	9 ~~10~~	U
91-58-7	2-Chloronaphthalene	1 ~~10~~	U
88-74-4	2-Nitroaniline	23 ~~25~~	U
131-11-3	Dimethylphthalate	9 ~~10~~	U
606-20-2	2,6-Dinitrotoluene	1 ~~10~~	U
208-96-8	Acenaphthylene	1 ~~10~~	U
99-09-2	3-Nitroaniline	23 ~~25~~	U
83-32-9	Acenaphthene	9 ~~10~~	U

L. Dickinson 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW01DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-2

Sample wt/vol: 1100 (g/mL) ML Lab File ID: QR1067-2A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	23 ~~25~~	BUJ
100-02-7	4-Nitrophenol	1 ~~25~~	U
132-64-9	Dibenzofuran	9 ~~10~~	U
121-14-2	2,4-Dinitrotoluene	| ~~10~~	U
84-66-2	Diethylphthalate	| ~~10~~	U
86-73-7	Fluorene	| ~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	1 ~~10~~	U
100-01-6	4-Nitroaniline	23 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	1 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	9 ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	| ~~10~~	U
118-74-1	Hexachlorobenzene	| ~~10~~	U
1912-24-9	Atrazine	1 ~~10~~	U
87-86-5	Pentachlorophenol	23 ~~25~~	U
85-01-8	Phenanthrene	9 ~~10~~	U
120-12-7	Anthracene	| ~~10~~	U
86-74-8	Carbazole	| ~~10~~	U
84-74-2	Di-n-butylphthalate	| ~~10~~	U
206-44-0	Fluoranthene	| ~~10~~	U
129-00-0	Pyrene	| ~~10~~	U
85-68-7	Butylbenzylphthalate	| ~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	| ~~10~~	U
56-55-3	Benzo(a)anthracene	| ~~10~~	U
218-01-9	Chrysene	| ~~10~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	| ~~10~~	U
117-84-0	Di-n-octylphthalate	| ~~10~~	U
205-99-2	Benzo(b)fluoranthene	| ~~10~~	U
207-08-9	Benzo(k)fluoranthene	| ~~10~~	U
50-32-8	Benzo(a)pyrene	| ~~10~~	U
193-39-5	Indeno(1,2,3-cd)pyrene	| ~~10~~	U
53-70-3	Dibenzo(a,h)anthracene	| ~~10~~	U
191-24-2	Benzo(g,h,i)perylene	1 ~~10~~	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson
5/16/02

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SW01DPCJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-2

Sample wt/vol: 1100 (g/mL) ML Lab File ID: QR1067-2A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		~~UNKNOWN~~	~~24.54~~	~~2~~	~~J~~ R
2.					
3.					
4.			E. Dickinson 5/16/02		
5.					
6.					
7.					
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27.					
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29.					
30.					

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW02CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-3

Sample wt/vol: 1050 (g/mL) ML Lab File ID: QR1067-3A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-52-7	Benzaldehyde	10	U
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
98-86-2	Acetophenone	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
105-60-2	Caprolactam	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	24 ~~25~~	U
92-52-4	1,1'-Biphenyl	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	24 ~~25~~	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	24 ~~25~~	U
83-32-9	Acenaphthene	10	U

L. Dickinson 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW02CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-3

Sample wt/vol: 1050 (g/mL) ML Lab File ID: QR1067-3A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	24 ~~25~~	~~U~~ UJ
100-02-7	4-Nitrophenol	24 ~~25~~	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
86-73-7	Fluorene	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
100-01-6	4-Nitroaniline	24 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	24 ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
1912-24-9	Atrazine	10	U
87-86-5	Pentachlorophenol	24 ~~25~~	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	5	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson 5/16/02

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SW02CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-3

Sample wt/vol: 1050 (g/mL) ML Lab File ID: QR1067-3A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
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27.					
28.					
29.					
30.					

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW03CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-4

Sample wt/vol: 1125 (g/mL) ML Lab File ID: QR1067-4A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
100-52-7	Benzaldehyde	9	~~10~~	U
108-95-2	Phenol		~~10~~	U
111-44-4	bis(2-Chloroethyl)ether		~~10~~	U
95-57-8	2-Chlorophenol		~~10~~	U
95-48-7	2-Methylphenol		~~10~~	U
108-60-1	2,2'-oxybis(1-Chloropropane)		~~10~~	U
98-86-2	Acetophenone		~~10~~	U
106-44-5	4-Methylphenol		~~10~~	U
621-64-7	N-Nitroso-di-n-propylamine		~~10~~	U
67-72-1	Hexachloroethane		~~10~~	U
98-95-3	Nitrobenzene		~~10~~	U
78-59-1	Isophorone		~~10~~	U
88-75-5	2-Nitrophenol		~~10~~	U
105-67-9	2,4-Dimethylphenol		~~10~~	U
111-91-1	bis(2-Chloroethoxy)methane		~~10~~	U
120-83-2	2,4-Dichlorophenol		~~10~~	U
91-20-3	Naphthalene		~~10~~	U
106-47-8	4-Chloroaniline		~~10~~	U
87-68-3	Hexachlorobutadiene		~~10~~	U
105-60-2	Caprolactam		~~10~~	U
59-50-7	4-Chloro-3-methylphenol		~~10~~	U
91-57-6	2-Methylnaphthalene		~~10~~	U
77-47-4	Hexachlorocyclopentadiene		~~10~~	U
88-06-2	2,4,6-Trichlorophenol	1	~~10~~	U
95-95-4	2,4,5-Trichlorophenol	22	~~25~~	U
92-52-4	1,1'-Biphenyl	9	~~10~~	U
91-58-7	2-Chloronaphthalene	1	~~10~~	U
88-74-4	2-Nitroaniline	22	~~25~~	U
131-11-3	Dimethylphthalate	9	~~10~~	U
606-20-2	2,6-Dinitrotoluene		~~10~~	U
208-96-8	Acenaphthylene	1	~~10~~	U
99-09-2	3-Nitroaniline	22	~~25~~	U
83-32-9	Acenaphthene	9	~~10~~	U

L. Dickinson 5/16/02

1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW03CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-4

Sample wt/vol: 1125 (g/mL) ML Lab File ID: QR1067-4A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Extraction: (Type) CONT

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	22 ~~25~~	~~U~~ UJ
100-02-7	4-Nitrophenol	" ~~25~~	U
132-64-9	Dibenzofuran	9 ~~10~~	U
121-14-2	2,4-Dinitrotoluene	" ~~10~~	U
84-66-2	Diethylphthalate	" ~~10~~	U
86-73-7	Fluorene	" ~~10~~	U
7005-72-3	4-Chlorophenyl-phenylether	" ~~10~~	U
100-01-6	4-Nitroaniline	22 ~~25~~	U
534-52-1	4,6-Dinitro-2-methylphenol	" ~~25~~	U
86-30-6	N-nitrosodiphenylamine (1)	9 ~~10~~	U
101-55-3	4-Bromophenyl-phenylether	" ~~10~~	U
118-74-1	Hexachlorobenzene	" ~~10~~	U
1912-24-9	Atrazine	" ~~10~~	U
87-86-5	Pentachlorophenol	22 ~~25~~	U
85-01-8	Phenanthrene	9 ~~10~~	U
120-12-7	Anthracene	" ~~10~~	U
86-74-8	Carbazole	" ~~10~~	U
84-74-2	Di-n-butylphthalate	" ~~10~~	U
206-44-0	Fluoranthene	" ~~10~~	U
129-00-0	Pyrene	" ~~10~~	U
85-68-7	Butylbenzylphthalate	" ~~10~~	U
91-94-1	3,3'-Dichlorobenzidine	" ~~10~~	U
56-55-3	Benzo(a)anthracene	" ~~10~~	U
218-01-9	Chrysene	" ~~10~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	J
117-84-0	Di-n-octylphthalate	9 ~~10~~	U
205-99-2	Benzo(b)fluoranthene	" ~~10~~	U
207-08-9	Benzo(k)fluoranthene	" ~~10~~	U
50-32-8	Benzo(a)pyrene	" ~~10~~	U
193-39-5	Indeno(1,2,3-cd)pyrene	" ~~10~~	U
53-70-3	Dibenzo(a,h)anthracene	" ~~10~~	U
191-24-2	Benzo(g,h,i)perylene	" ~~10~~	U

(1) - Cannot be separated from Diphenylamine

E. Dickinson 5/16/02

1G

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: SW03CJ

Lab Name: COMPUCHEM Contract: OLM04-REVS

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix: (soil/water) WATER Lab Sample ID: QR1067-4

Sample wt/vol: 1125 (g/mL) ML Lab File ID: QR1067-4A70

Level: (low/med) LOW Date Received: 03/21/02

% Moisture: _____ Decanted: (Y/N)___ Date Extracted:03/22/02

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/25/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
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TRILLIUM INC.

DATA VALIDATION

FOR

MARION BRAGG LANDFILL
MARION, INDIANA

INORGANIC ANALYSIS DATA
Dissolved Metals in Water

SDG Nos. QQ1067 and QR1067
Samples Collected March 2002

Chemical Analyses Performed by:

CompuChem Environmental
Cary, North Carolina

FOR

O & M, Inc.
Danville, Indiana

BY

Trillium, Inc.
356 Farragut Crossing Drive
Knoxville, Tennessee 37922
(865) 966-8880

May 16, 2002

92241/EKD/CAE
MARION\Mar02\DMetals

TRILLIUM INC.

EXECUTIVE SUMMARY

Validation of the inorganics analysis data (dissolved metals) prepared by CompuChem Environmental for 14 water samples and one field blank from the Marion Bragg Landfill Site in Marion, Indiana, has been completed by Trillium, Inc. The data were reported by the laboratory in two separate data packages under Sample Delivery Group (SDG) Nos. QR1067 and QQ1067, which were received for review on April 2, 2002. The following samples were reported:

SDG No. QQ1067:

GW08CJ (MB-1)	GW08DPCJ (MB-1D)	GW07CJ (MB-2)
GW03CJ (MB-5)	GW04CJ (MB-6)	GW05CJ (MB-7)
GW06CJ (MB-8)	GW02CJ (MB-9)	GW01CJ (MB-10)
GW09FBCJ (Field Blank)		

SDG No. QR1067:

PW01CJ (PW-1)	SW01CJ (SW-1)	SW01DPCJ (SW-1D)
SW02CJ (SW-5)	SW03CJ (SW-6)	

Findings of the validation effort resulted in the following qualifications of sample results:

- Results for mercury in all samples were qualified as estimated (UJ).
- The result for antimony in SW01DPCJ was qualified as less than the reported value (U).
- Results for aluminum in GW08CJ, GW07CJ, GW04CJ, GW05CJ, GW02CJ, GW01CJ, GW09FBCJ, SW02CJ, and SW03CJ were qualified as less than the reported values (U).
- The result for magnesium in GW09FBCJ was qualified as less than the reported value (U).
- Results for silver in GW08CJ, PW01CJ, SW02CJ, and SW03CJ were qualified as estimated (UJ).
- The result for manganese in GW01CJ was qualified as less than the reported value (U).
- Results for cobalt and selenium in GW08CJ were qualified as less than the CRDLs (50.0 U and 5.0 U, respectively).

- Results for copper and selenium in SW01DPCJ were qualified as less than the CRDLs (25.0 U and 5.0 U, respectively).
- Results for potassium in all samples except GW09FBCJ were qualified as estimated (J).
- Results for zinc in GW08CJ and GW08DPCJ were rejected (R).
- The result for arsenic in PW01CJ was qualified as estimated (J).
- Results for nickel in GW02CJ and SW03CJ were qualified as estimated (J).
- Results for selenium in GW06CJ and SW02CJ were qualified as estimated (J).
- Results for cobalt in GW03CJ and GW04CJ, for copper in PW01CJ, for nickel in SW01CJ, and for zinc in SW02CJ were qualified as estimated (J).

All "B" and "E" flags applied by the laboratory were removed by the validator.

Brief explanations of the reasons for the actions taken above may be found in the Overall Assessment (Section XIII). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section XII of this report.

This validation report should be considered part of both data packages for all future distributions of the inorganics data.

INTRODUCTION

Analyses were performed according to the USEPA Contract Laboratory Program (CLP) Statement of Work ILM04.0. All target analytes (dissolved metals) were analyzed using trace ICP (inductively coupled plasma) and cold vapor atomic absorption (CVAA) instrumentation. Results of analyses are reported by the laboratory as either qualified or unqualified; various qualifier codes denote specific information regarding the analytical results.

Trillium's validation was performed in accordance with the EPA "National Functional Guidelines for Inorganic Data Review" (EPA 540/R-94/013, 2/94). The EPA Region II Standard Operating Procedure (SOP) No. HW-2, (Revision XI), January 1992, "Evaluation of Metals Data for the Contract Laboratory Program (CLP)" was also used as guidance for the validation effort, and professional judgment was applied as necessary and appropriate.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis for chemical analyses conducted under the CLP. An initial assumption is that each data package is presented in accordance with the CLP requirements. It is also assumed that each data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on the review, qualifier codes may be added, deleted, or modified by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by the National Functional Guidelines:

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

R - The data are unusable. (Note: The analyte may or may not be present.)

J - The associated value is an estimated quantity.

UJ - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

These codes are recorded on the customized data tables contained in Attachment A as well as on the Inorganic Analysis Data Sheets (Form Is) in Attachment B of this validation report to qualify the results as appropriate according to the review of the data packages.

Two facts should be noted by all data users. First, **the "R" qualifier means that the laboratory-reported value is unusable.** In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, **no analyte concentration is guaranteed to be accurate even if all associated quality control is acceptable.** Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

The samples were collected March 19-20, 2002. All metals analyses were conducted well within acceptable holding times.

Field filtration of the samples for dissolved metals analysis and subsequent preservation of these samples with nitric acid and ice were documented by the sampling team on the two chain of custody (COC) records. An acceptable cooler temperature (3 °C) was also recorded on each of the COCs as well as on the laboratory's receiving logs. Acceptable sample pHs (<2) were recorded on all applicable receiving and preparation logs. Therefore, successful sample preservation in the field was confirmed.

According to the narrative in each data package, all samples were received intact and in good condition.

II. Calibrations

Sample analyses for all Trace ICP target elements were performed in a single analysis series on 3/27/02. Mercury analyses were performed in a single CVAA series run on 3/27/02. A linearity check at the start of the CVAA series gave an acceptable correlation coefficient (>0.995). Initial and continuing calibration verification (ICV/CCV) standards were satisfactory for all metals reported from both applicable analysis series (90-110% for all ICP target analytes and 85-115% for mercury).

Contract required detection limit (CRDL) standards were run at regular intervals throughout the ICP analysis series; all applicable analytes were at the required concentrations (2xCRDL). Recoveries were acceptable (80-120%) for all analytes in all CRDL standards.

A CRDL standard was also run at the start of the analysis series for mercury. The recovery for mercury in this standard (70%) was low; therefore, results for mercury in all samples were qualified as estimated (UJ).

III. Blanks

No metals calibration blanks had values above the CRDLs or less than the negative CRDLs for any target element. However, responses above the applicable instrument detection limits (IDLs) were found for various combinations of four different elements (aluminum, antimony, beryllium, and magnesium) in each of the initial and continuing calibration blanks (ICB/CCBs); in addition, results for one or more of two elements (calcium and silver) that were below the negative IDLs were also reported in several of the ICB/CCBs. Results for samples analyzed within five runs of an affected ICB/CCB warrant qualification if the sample result is less than five times the positive blank value or less than two times the absolute value of the negative blank value. The following sample results were

qualified as less than the reported values (U) due to contamination in the associated calibration blanks:

- Antimony in SW01DPCJ;
- Aluminum in GW08CJ, GW07CJ, GW04CJ, GW05CJ, GW02CJ, GW01CJ, SW02CJ, and SW03CJ; and
- Magnesium in GW09FBCJ.

Results for silver in GW08CJ, PW01CJ, SW02CJ, and SW03CJ were qualified as estimated (UJ) based on a negative response in the associated calibration blank.

Sample results for all remaining elements for which positive or negative responses were found in the ICB/CCBs were not affected by the associated calibration blank values.

Two preparation blanks (PBWs) were prepared and analyzed with the samples in these SDGs. The PBW associated with SDG No. QQ1067 had a response for aluminum (115 µg/L), and the PBW associated with SDG No. QR1067 had a response for calcium (-58.6 µg/L). Results for aluminum in GW08CJ, GW07CJ, GW04CJ, GW05CJ, GW02CJ, GW01CJ, and GW09FBCJ were qualified as less than the reported values (U) due to associated PBW contamination.

Some of the actions warranted based on PBW responses are redundant with actions taken based on CCB results; no additional action was taken in these cases. Sample results for elements detected in the preparation blanks but not specifically listed above exceeded the action limits for qualification, therefore no action was warranted based on the preparation blank concentrations.

One field blank, GW09FBCJ, was prepared in association with the "GW" samples in SDG No. QQ1067. After qualifications based on laboratory blank contamination, barium (6.6 µg/L), calcium (215 µg/L), copper (50.1 µg/L), manganese (0.91 µg/L), and sodium (535 µg/L) were detected in this field-submitted blank. The result for manganese in GW01CJ was qualified as less than the reported value (U) based on associated field blank contamination. No other sample results were affected by the field blank values.

IV. ICP Interference Check Sample

All interference check sample results were satisfactory (80-120 percent recovery).

V. Laboratory Control Sample

Two laboratory control samples (LCSs) were run for all ICP target analytes in association with the two SDGs that make up this data set. All laboratory control sample results for the ICP target analytes were satisfactory (80-120 percent recovery).

Based on the available documentation, no LCS samples were prepared or analyzed for mercury.

VI. Laboratory Duplicate Analysis

Duplicate analysis was performed on samples GW08CJ (SDG No. QQ1067) and SW01DPCJ (SDG No. QR1067) for all target analytes. Relative percent differences (RPDs) between positive paired analytes in GW08CJ and its duplicate were acceptable (<20%) in all cases.

Positive results below the CRDL for aluminum (71.0 µg/L), cobalt (2.4 µg/L) and selenium (2.3 µg/L) were reported in the original analysis of GW08CJ but were not confirmed in the duplicate analysis (44.0 U, 2.0 U, and 1.9 U), respectively). The result for aluminum in GW08CJ was qualified based on calibration blank contamination (see Section III); therefore, no action was necessary based on the duplicate comparison. Cobalt and selenium were also not detected in the field duplicate of GW08CJ (GW08DPCJ; see Section IX). Based on professional judgment, results for cobalt and selenium in GW08CJ were qualified as less than the CRDLs (50.0 U and 5.0 U, respectively) due to lack of confirmation in the laboratory duplicate analyses.

For SW01DPCJ and its duplicate, the RPDs between the positive paired results for antimony (21.5%) and nickel (41.6%) exceeded the acceptable limit (20 RPD). However, both measured concentrations for both elements were below the CRDL and met the alternate validation criterion of ±CRDL. Therefore, no qualifiers were applied by the validator on this basis.

Positive results below the CRDL for copper (2.0 µg/L) and selenium (2.3 µg/L) were reported in the original analysis of SW01DPCJ but were not confirmed in the duplicate analysis (1.8 U, and 1.9 U), respectively). In addition, a positive result below the CRDL for aluminum (56.9 µg/L) was reported in the laboratory duplicate analysis but was not confirmed in the original analysis of SW01DPCJ. The result for aluminum in the laboratory duplicate warranted qualification based on calibration blank contamination; therefore, no action was necessary based on the duplicate comparison. Copper and selenium were also not detected in the field duplicate of SW01DPCJ (SW01CJ; see Section IX). Based on professional judgment, results for copper and selenium in SW01DPCJ were qualified as less than the CRDLs (25.0 U and 5.0 U, respectively) due to lack of confirmation in the laboratory duplicate analyses.

VII. Matrix Spike Analysis

Matrix spike analysis was performed on samples GW08CJ and SW01DPCJ with acceptable recoveries (75-125%) for all target elements

VIII. ICP Serial Dilution

Serial dilution analysis was performed on samples GW08CJ and SW01DPCJ. Results for elements with initial (undiluted) results greater than 50xIDL were acceptable (less than 10 percent difference) except for potassium in both GW08CJ (16.0%) and SW01DPCJ (20.2%). Results for potassium in all samples except GW09FBCJ were qualified as estimated (J) based on these serial dilution results.

The "E" flags appropriately applied by the laboratory to all of the positive site sample results for potassium were removed by the validator.

IX. Field Duplicates

Sample GW08DPCJ was identified as a field duplicate of GW08CJ. Relative percent differences (RPDs) between positive paired results were acceptable (4-22%; QC <50%). Zinc was detected at a concentration well above the CRDL in GW08DPCJ (39.3 µg/L) but was not confirmed in GW08CJ (4.6 U). Based on professional judgment, results for zinc in GW08CJ and GW08DPCJ were rejected (R) due to the significant discrepancy between paired field duplicate results.

Cobalt and selenium were detected at concentrations below the CRDL in GW08CJ (2.4 µg/L and 2.3 µg/L, respectively) but were not confirmed in GW08DPCJ (2.0 U and 1.9 U, respectively). These two analytes were also not detected in the laboratory duplicate analysis of this sample (see Section VI). Based on professional judgment, results for cobalt and selenium in GW08CJ were qualified as less than the CRDLs (50.0 U and 5.0 U, respectively) on this basis.

Sample SW01DPCJ was identified as a field duplicate of SW01CJ. RPDs between all positive paired results were acceptable (4-31%). Positive results below the CRDLs for copper (2.0 µg/L) and selenium (3.0 µg/L) were reported in SW01DPCJ but were not confirmed in SW01CJ (1.8 U and 1.9 U, respectively). Based on professional judgment, results for copper and selenium in SW01DPCJ were qualified as less than the CRDLs (25.0 U and 5.0 U, respectively) due to the lack of field duplicate confirmation.

X. Sample Results Verification

Positive sample results were accurately reported from the raw data and IDLs established within three months prior to these sample analyses (on 1/15/02 for all ICP elements and for mercury) were appropriately reported for those elements that were not detected.

Elevated %RSDs (>20%) among the triplicate measurements taken for each element in each run were found for numerous elements reported at concentrations just slightly above the applicable IDLs. Many of these results were subsequently qualified as less than the reported values due to associated blank contamination or as less than the CRDL due to lack of laboratory or field duplicate confirmation; no additional action was necessary in these cases. Those sample results that were not so qualified were qualified by the validator as estimated (J) due to the high %RSDs; these values must be considered estimates based on the inconsistent responses obtained at the measured concentrations. The following results were qualified on this basis:

- Arsenic in PW01CJ (33.0%);
- Nickel in GW02CJ (35.5%) and SW03CJ (20.9%); and
- Selenium in GW06CJ (56.4%) and SW02CJ (37.1%).

Positive sample results greater than the applicable IDLs but below the CRDLs were correctly reported by the laboratory with "B" qualifiers. As concentrations approach the IDL the accuracy of the measurement decreases; values closer to the CRDL, however, are probably quite accurate. Therefore, a guideline of 2xIDL was used to determine whether the reported results warranted qualification; specifically, sample results below the respective CRDL, less than 2xIDL and not otherwise qualified warrant qualification as estimated (J). Results for cobalt in GW03CJ and GW04CJ, for copper in PW01CJ, for nickel in SW01CJ, and for zinc in SW02CJ were so qualified on this basis.

All "B" qualifiers applied by the laboratory were removed by the validator.

XI. Other QC

Total metals analyses were not performed on these samples.

XII. Documentation

The two applicable chain of custody (COC) records were present in both data packages and included all samples reported in these two SDGs. The following issues were noted:

- Improper corrections were observed on both of the COC records. All corrections to these important legal documents must be made by drawing a single line through the incorrect entry, inserting the correct information, and initialing and dating the change. Obliterations and "write-overs" are not legally defensible.

- A copy of the courier airbill was not included in either data package to document the shipment portion of the sample transfers. The airbill number, however, was documented on both of the COC records.

- Although this approach is specified by the Quality Assurance Project Plan (QAPP), additional sample volumes provided to facilitate the laboratory's analysis of an MS/MSD pair should not be recorded on the COC as separate samples. Instead, a notation should be made indicating the sample for which extra volume has been provided, with the instruction that this sample be used for the MS/MSD analysis. MS/MSD analyses are laboratory-initiated quality control; if not for the logistical need to provide sufficient volume for the multiple analyses involved, MS/MSD pairs would never be mentioned on COC documentation.

These COC documentation issues do not directly affect the technical validity of the data generated for these samples, however some of them could be problematic if the data were to be used in litigation.

XIII. Overall Assessment

Based on the validation effort, dissolved metals results for samples in SDG Nos. QQ1067 and QR1067 were qualified as follows:

- Results for mercury in all samples were qualified as estimated (UJ) due to the low recovery of this analyte in the CRDL standard.

- The result for antimony in SW01DPCJ was qualified as less than the reported value (U) due to associated calibration blank contamination.

- Results for aluminum in GW08CJ, GW07CJ, GW04CJ, GW05CJ, GW02CJ, GW01CJ, SW02CJ, and SW03CJ were qualified as less than the reported values (U) due to associated calibration and/or preparation blank contamination.

- The result for magnesium in GW09FBCJ was qualified as less than the reported value (U) due to associated calibration blank contamination.

- Results for silver in GW08CJ, PW01CJ, SW02CJ, and SW03CJ were qualified as estimated (UJ) based on a negative response in the associated calibration blank.

- The result for aluminum in GW09FBCJ was qualified as less than the reported value (U) due to associated preparation blank contamination.

- The result for manganese in GW01CJ was qualified as less than the reported value (U) based on associated field blank contamination.

- Results for cobalt and selenium in GW08CJ were qualified as less than the CRDLs (50.0 U and 5.0 U, respectively) due to lack of confirmation in the laboratory and field duplicate analyses and professional judgment.

- Results for copper and selenium in SW01DPCJ were qualified as less than the CRDLs (25.0 U and 5.0 U, respectively) due to lack of confirmation in the laboratory and field duplicate analyses and professional judgment.

- Results for potassium in all samples except GW09FBCJ were qualified as estimated (J) based on unacceptable serial dilution results.

- Results for zinc in GW08CJ and GW08DPCJ were rejected (R) due to the significant discrepancy between paired field duplicate results and professional judgment.

- The result for arsenic in PW01CJ was qualified as estimated (J) based on an elevated %RSD among the triplicate ICP measurements.

- Results for nickel in GW02CJ and SW03CJ were qualified as estimated (J) based on elevated %RSDs among the triplicate ICP measurements.

- Results for selenium in GW06CJ and SW02CJ were qualified as estimated (J) based on elevated %RSDs among the triplicate ICP measurements.

- Results for cobalt in GW03CJ and GW04CJ, for copper in PW01CJ, for nickel in SW01CJ, and for zinc in SW02CJ were qualified as estimated (J) because they were less than 2xIDL and were not otherwise qualified.

All "B" and "E" flags applied by the laboratory were removed by the validator.

Documentation issues observed in the data package are discussed in Section XII.

This validation report should be considered part of both data packages for all future distributions of the inorganics data.

TRILLIUM INC.

ATTACHMENT A

DATA TABLES
SDG Nos. QQ1067 and QR1067
Dissolved Metals in Water

Marion Bragg Landfill - September 2001 - Dissolved Metals in Ground Water and Surface Water Samples

All Results are in ug/L

Collection Point ===>		MB-1	MB-1D	MB-2	MB-5	MB-6	MB-7	MB-8	MB-9
Sample ID ===>		GW08CJ	GW08DPCJ	GW07CJ	GW03CJ	GW04CJ	GW05CJ	GW06CJ	GW02CJ
Lab Sample No. ===>		QQ1067-8	QQ1067-9	QQ1067-7	QQ1067-3	QQ1067-4	QQ1067-5	QQ1067-6	QQ1067-2
Collection Date. ===>		3/20/02	3/20/02	3/20/02	3/20/02	3/20/02	3/20/02	3/20/02	3/20/02
	CRDL								
Aluminum	200	71.0 U	44.0 U	53.2 U	44.0 U	56.8 U	59.4 U	44.0 U	96.6 U
Antimony	60	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Arsenic	10	6.6	7.5	35.8	6.0	167	72.7	132	8.7
Barium	200	215	225	612	340	533	690	309	70.8
Beryllium	5	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Cadmium	5	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Calcium	5000	130000	138000	195000	156000	164000	118000	128000	63700
Chromium	10	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U
Cobalt	50	50.0 U	2.0 U	2.0 U	2.0 J	2.1 J	2.0 U	2.0 U	2.0 U
Copper	25	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Iron	100	1700	2110	14800	1690	23000	9960	13000	2280
Lead	3	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Magnesium	5000	36200	38300	42300	70300	42200	43300	88600	23400
Manganese	15	954	1020	370	224	99.0	123	150	557
Mercury	0.2	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ
Nickel	40	3.4	2.9	3.7	3.2	16.9	2.6	3.7	1.1 J
Potassium	5000	2710 J	2880 J	14200 J	3010 J	12600 J	18900 J	27700 J	1430 J
Selenium	5	5.0 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	2.8 J	1.9 U
Silver	10	0.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Sodium	5000	16800	17900	19200	22600	22000	42400	117000	11600
Thallium	10	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Vanadium	50	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Zinc	20	R	R	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U

Marion Bragg Landfill - September 2001 - Dissolved Metals in Ground Water and Surface Water Samples

All Results are in ug/L

Collection Point ===>		MB-10	Field Blank	PW-1	SW-1	SW-1D	SW-5	SW-6
Sample ID ===>		GW01CJ	GW09FBCJ	PW01CJ	SW01CJ	SW01DPCJ	SW02CJ	SW03CJ
Lab Sample No. ===>		QQ1067-1	QQ1067-10	QR1067-5	QR1067-1	QR1067-2	QR1067-3	QR1067-4
Collection Date. ===>		3/20/02	3/19/02	3/19/02	3/19/02	3/19/02	3/19/02	3/19/02
	CRDL							
Aluminum	200	69.6 U	47.5 U	44.0 U	44.0 U	44.0 U	54.7 U	58.6 U
Antimony	60	1.5 U	1.5 U	1.5 U	1.5 U	2.0 U	1.5 U	1.5 U
Arsenic	10	1.7 U	1.7 U	1.8 J	1.7 U	1.7 U	1.7 U	1.7 U
Barium	200	98.1	6.6	166	72.6	66.7	70.2	67.9
Beryllium	5	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Cadmium	5	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Calcium	5000	120000	215	63800	101000	88400	97900	94600
Chromium	10	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U
Cobalt	50	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Copper	25	1.8 U	50.1	1.9 J	1.8 U	25.0 U	1.8 U	1.8 U
Iron	100	23.8 U	23.8 U	23.8 U	23.8 U	23.8 U	23.8 U	23.8 U
Lead	3	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Magnesium	5000	37500	131 U	29200	34300	30100	33300	32200
Manganese	15	1.1 U	0.91	2.1	22.4	21.5	18.2	18.6
Mercury	0.2	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ
Nickel	40	1.0 U	1.0 U	3.2	1.6 J	2.2	2.5	1.4 J
Potassium	5000	2530 J	24.9 U	4880 J	2480 J	2180 J	2430 J	2360 J
Selenium	5	1.9 U	1.9 U	1.9 U	1.9 U	5.0 U	2.2 J	1.9 U
Silver	10	0.50 U	0.50 U	0.50 UJ	0.50 U	0.50 U	0.50 UJ	0.50 UJ
Sodium	5000	16800	535	17100	17200	15100	16800	16300
Thallium	10	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Vanadium	50	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Zinc	20	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	6.4 J	4.6 U

TRILLIUM INC.

ATTACHMENT B

INORGANIC ANALYSIS DATA SHEETS (Form Is)
SDG Nos. QQ1067 and QR1067
Dissolved Metals in Water

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-8

Level (low/med): LOW Date Received: 03/21/02

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	71.0	~~B~~	U	P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	6.6	~~B~~		P
7440-39-3	Barium	215			P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	130000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	~~50.0~~ 24	~~B~~	U	P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	1700			P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	36200			P
7439-96-5	Manganese	954			P
7439-97-6	Mercury	0.10	~~U~~	UJ	CV
7440-02-0	Nickel	3.4	~~B~~		P
7440-09-7	Potassium	2710	~~B~~	~~B~~J	P
7782-49-2	Selenium	~~5.0~~ 23	~~B~~	U	P
7440-22-4	Silver	0.50	~~U~~	UJ	P
7440-23-5	Sodium	16800			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	~~4.6~~	~~U~~	R	P

L. Dickinson 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: ~~DISSOLVED~~

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW08DPCJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-9

Level (low/med): LOW Date Received: 03/21/02

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	44.0	U		P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	7.5	~~B~~		P
7440-39-3	Barium	225			P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	138000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	2110			P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	38300			P
7439-96-5	Manganese	1020			P
7439-97-6	Mercury	0.10	~~U~~	UJ	CV
7440-02-0	Nickel	2.9	~~B~~		P
7440-09-7	Potassium	2880	~~B~~	~~EJ~~	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	17900			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	~~39.3~~		R	P

L. Dickinson 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

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U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW07CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-7

Level (low/med): LOW Date Received: 03/21/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	53.2	B	U	P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	35.8			P
7440-39-3	Barium	612			P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	195000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	14800			P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	42300			P
7439-96-5	Manganese	370			P
7439-97-6	Mercury	0.10	B	UJ	CV
7440-02-0	Nickel	3.7	B		P
7440-09-7	Potassium	14200		EJ	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	19200			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

L. Buchanan 5/16/02

Color Before: YELLOW Clarity Before: CLEAR Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

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U. S. EPA-CLP

I

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW03CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-3

Level (low/med): LOW Date Received: 03/21/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	44.0	U		P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	6.0	B		P
7440-39-3	Barium	340			P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	156000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	B	J	P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	1690			P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	70300			P
7439-96-5	Manganese	224			P
7439-97-6	Mercury	0.10	B	UJ	CV
7440-02-0	Nickel	3.2	B		P
7440-09-7	Potassium	3010	B	BJ	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	22600			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

L. Dickerson 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW04CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-4

Level (low/med): LOW Date Received: 03/21/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	56.8	B	U	P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	167			P
7440-39-3	Barium	533			P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	164000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.1	B	J	P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	23000			P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	42200			P
7439-96-5	Manganese	99.0			P
7439-97-6	Mercury	0.10	U	UJ	CV
7440-02-0	Nickel	16.9	B		P
7440-09-7	Potassium	12600		EJ	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	22000			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

E. Dickinson 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW05CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-5

Level (low/med): LOW Date Received: 03/21/02

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	59.4	B	U	P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	72.7			P
7440-39-3	Barium	690			P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	118000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	9960			P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	43300			P
7439-96-5	Manganese	123			P
7439-97-6	Mercury	0.10	B	UJ	CV
7440-02-0	Nickel	2.6	B		P
7440-09-7	Potassium	18900		BJ	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	42400			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

L. Dickinson 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

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U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW06CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-6

Level (low/med): LOW Date Received: 03/21/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	44.0	U		P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	132			P
7440-39-3	Barium	309			P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	128000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	13000			P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	88600			P
7439-96-5	Manganese	150			P
7439-97-6	Mercury	0.10	U	UJ	CV
7440-02-0	Nickel	3.7	U		P
7440-09-7	Potassium	27700		EJ	P
7782-49-2	Selenium	2.8	U	J	P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	117000			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

E. Dickman 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

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U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW02CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-2

Level (low/med): LOW Date Received: 03/21/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	96.6	B	U	P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	8.7	B		P
7440-39-3	Barium	70.8	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	63700			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	2280			P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	23400			P
7439-96-5	Manganese	557			P
7439-97-6	Mercury	0.10	U	UJ	CV
7440-02-0	Nickel	1.1	B	J	P
7440-09-7	Potassium	1430	B	BJ	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	11600			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

— E. Dickinson 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

10

U. S. EPA-CLP

I

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW01CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-1

Level (low/med): LOW Date Received: 03/21/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	69.6	B	U	P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	1.7	U		P
7440-39-3	Barium	98.1	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	120000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	23.8	U		P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	37500			P
7439-96-5	Manganese	1.1	B	U	P
7439-97-6	Mercury	0.10	B	UJ	CV
7440-02-0	Nickel	1.0	U		P
7440-09-7	Potassium	2530	B	BJ	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	16800			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

L. Dickerson 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW09FBCJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-10

Level (low/med): LOW Date Received: 03/21/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	47.5	B	U	P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	1.7	U		P
7440-39-3	Barium	6.6	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	215	B		P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	50.1			P
7439-89-6	Iron	23.8	U		P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	131	B	U	P
7439-96-5	Manganese	0.91	B		P
7439-97-6	Mercury	0.10	B	UJ	CV
7440-02-0	Nickel	1.0	U		P
7440-09-7	Potassium	24.9	U	B	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	535	B		P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

L. Dickerson 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

PW01CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix (soil/water): WATER Lab Sample ID: QR1067-5

Level (low/med): LOW Date Received: 03/21/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	44.0	U		P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	1.8	B	J	P
7440-39-3	Barium	166	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	63800			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.9	B	J	P
7439-89-6	Iron	23.8	U		P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	29200			P
7439-96-5	Manganese	2.1	B		P
7439-97-6	Mercury	0.10	U	UJ	CV
7440-02-0	Nickel	3.2	B		P
7440-09-7	Potassium	4880	B	BJ	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U	UJ	P
7440-23-5	Sodium	17100			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

L. Dickinson 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW01CJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix (soil/water): WATER Lab Sample ID: QR1067-1

Level (low/med): LOW Date Received: 03/21/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	44.0	U		P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	1.7	U		P
7440-39-3	Barium	72.6	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	101000			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	23.8	U		P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	34300			P
7439-96-5	Manganese	22.4			P
7439-97-6	Mercury	0.10	V	UJ	CV
7440-02-0	Nickel	1.6	B	J	P
7440-09-7	Potassium	2480	B	EJ	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	17200			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

L. Diehnen 5/16/02

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

10

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW01DPCJ

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

Matrix (soil/water): WATER Lab Sample ID: QR1067-2

Level (low/med): LOW Date Received: 03/21/02

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	44.0	U		P
7440-36-0	Antimony	2.0	~~B~~	U	P
7440-38-2	Arsenic	1.7	U		P
7440-39-3	Barium	66.7	~~B~~		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	88400			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	25.0 ~~2.0~~	~~B~~	U	P
7439-89-6	Iron	23.8	U		P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	30100			P
7439-96-5	Manganese	21.5			P
7439-97-6	Mercury	0.10	~~B~~	UJ	CV
7440-02-0	Nickel	2.2	~~B~~		P
7440-09-7	Potassium	2180	~~B~~	EJ	P
7782-49-2	Selenium	5.0 ~~2.5~~	~~B~~	U	P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	15100			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

E. Dickinson 5/16/02

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Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

11

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW02CJ

ab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

atrix (soil/water): WATER Lab Sample ID: QR1067-3

Level (low/med): LOW Date Received: 03/21/02

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	54.7	B	UL	P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	1.7	U		P
7440-39-3	Barium	70.2	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	97900			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	23.8	U		P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	33300			P
7439-96-5	Manganese	18.2			P
7439-97-6	Mercury	0.10	B	UJ	CV
7440-02-0	Nickel	2.5	B		P
7440-09-7	Potassium	2430	B	EJ	P
7782-49-2	Selenium	2.2	B	J	P
7440-22-4	Silver	0.50	B	UJ	P
7440-23-5	Sodium	16800			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	6.4	B	J	P

E. Diehnan 5/16/02

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Comments:

U. S. EPA-CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SW03CJ

ab Name: COMPUCHEM Contract:

ab Code: LIBRTY Case No.: SAS No.: SDG No.: QR1067

atrix (soil/water): WATER Lab Sample ID: QR1067-4

Level (low/med): LOW Date Received: 03/21/02

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	58.6	~~B~~	UJ	P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	1.7	U		P
7440-39-3	Barium	67.9	~~B~~		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	94600			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	1.8	U		P
7439-89-6	Iron	23.8	U		P
7439-92-1	Lead	1.6	U		P
7439-95-4	Magnesium	32200			P
7439-96-5	Manganese	18.6			P
7439-97-6	Mercury	0.10	~~U~~	UJ	CV
7440-02-0	Nickel	1.4	~~B~~	J	P
7440-09-7	Potassium	2360	~~B~~	BJ	P
7782-49-2	Selenium	1.9	U		P
7440-22-4	Silver	0.50	~~U~~	UJ	P
7440-23-5	Sodium	16300			P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	1.7	U		P
7440-66-6	Zinc	4.6	U		P

L. Dickinson 5/16/02

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DATA VALIDATION

FOR

MARION BRAGG LANDFILL
MARION, INDIANA

WET CHEMISTRY ANALYSIS DATA
Total Suspended Solids,
Chloride, and Ammonia-Nitrogen in Water

CompuChem Case Nos. QQ1067 and QR1067
March 2002 Sample Collections

Chemical Analyses Performed by:

CompuChem Environmental
Cary, North Carolina

FOR

O & M, Inc.
Danville, Indiana

BY

Trillium, Inc.
356 Farragut Crossing Drive
Knoxville, TN 37922
(865) 966-8880

June 14, 2002

92241/CAE/ESC
\MARION\Mar02\WetChem

EXECUTIVE SUMMARY

Validation of the wet chemistry analysis data (total suspended solids [TSS], ammonia-nitrogen [ammonia], and chloride) prepared by CompuChem Environmental for 14 water samples and one field blank from the Marion Bragg Landfill Site in Marion, Indiana, has been completed by Trillium, Inc. The data were issued by the laboratory in two separate data packages, under CompuChem Case Nos. QQ1067 and QR1067, which were received for review on April 2, 2002, with additional information provided on May 14, 2002, May 24, 2002, and June 12, 2002. The following field samples were reported:

SDG No. QQ1067:

GW08CJ (MB-1)	GW08DPCJ (MB-1D)	GW07CJ (MB-2)
GW03CJ (MB-5)	GW04CJ (MB-6)	GW05CJ (MB-7)
GW06CJ (MB-8)	GW02CJ (MB-9)	GW01CJ (MB-10)
GW09FBCJ (Field Blank)		

SDG No. QR1067:

PW01CJ (PW-1)	SW01CJ (SW-1)	SW01DPCJ (SW-1D)
SW02CJ (SW-5)	SW03CJ (SW-6)	

Based on the validation effort, the sample results were qualified or corrected as follows:

- Results for TSS in all samples were qualified as estimated (J).
- The positive results for ammonia in GW07CJ, GW03CJ, GW04CJ, GW05CJ, GW06CJ, GW02CJ, and PW01CJ were rounded to reflect two significant figures (instead of four significant figures, as reported by the laboratory).
- The positive results for TSS in GW09FBCJ and SW02CJ were rounded to reflect two significant figures (instead of three significant figures, as reported by the laboratory).
- RLs for ammonia, chloride, and TSS were adjusted to reflect two significant figures (instead of four, three, and four, respectively, as reported by the laboratory).

Brief explanations of the reasons for the actions taken above may be found in the Overall Assessment (Section X). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section IX.

This validation report should be considered part of both data packages for all future distributions of the wet chemistry data.

INTRODUCTION

Analyses for the requested parameters were performed by the laboratory according to the following analytical methods:

Ammonia - EPA 350.1
Chloride - EPA 300.0
Total Suspended Solids (TSS) - EPA 160.2

These methods are found in "Methods for Chemical Analysis of Water and Wastes," EPA 600/4-79/020, Rev. 3/83.

Since no validation guidelines specific to the analytical methods used are available, the validation was based on the requirements of the referenced procedures, the specifications of the project-specific Quality Assurance Project Plan (QAPP) and best professional judgment. The validation approach was similar to that described in USEPA's "National Functional Guidelines for Inorganic Data Review" (EPA-540/R-94/013, February 1994).

The data validation process is intended to evaluate data on a technical basis rather than a contract or method compliance basis. An initial assumption is that each data package contains sufficient raw data documentation to facilitate the validation process, comparable to the level of documentation required in a Contract Laboratory Program (CLP) data package.

During the validation process, laboratory data are verified against all available supporting documentation. Based on the findings of this review, qualifier codes may be added by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes in accordance with EPA's validation guidelines:

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

R - The data are unusable. (Note: Analyte may or may not be present.)

J - The associated value is an estimated quantity.

UJ - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

These codes are recorded on the customized data tables in Attachment A and the Classical Chemistry Analyses Data Sheets (Form Is) in Attachment B to qualify the results as appropriate according to the review of the data packages.

Two facts should be noted by all data users. First, **the "R" qualifier means that the laboratory-reported value is unusable.** In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, **no analyte concentration is guaranteed to be accurate even if all associated quality control is acceptable.** Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

The samples were collected March 19-20, 2002. Analyses for all parameters were conducted within the holding times specified by the referenced methods and the QAPP (28 days from collection for chloride and ammonia; seven days from collection for TSS).

Preservation of all samples with ice was documented by the sampler on both applicable chain of custody (COC) records. An acceptable cooler temperature (3 °C) on laboratory receipt was also documented on each of the COCs. However, the notation "The NH_3N samples need to be preserved in-house/were not sent to O&M w/preservative" was recorded on both COCs by the sampler. No pHs for the ammonia samples were recorded on the laboratory receiving logs, and no Quality Assurance Notice indicating that in-house preservation had been performed was included in either data package. The internal laboratory COCs did indicate that the samples for ammonia analysis were preserved with sulfuric acid, but no pHs were recorded. At the request of the validator, the laboratory investigated this issue. Although no documentation was prepared at the time it was done, an email provided to Trillium on June 12, 2002, stated that an aliquot from the sample container designated for TSS, chloride, and ammonia was preserved at the laboratory (see Attachment C). Therefore, no action was taken by the validator.

II. Calibrations

All samples were analyzed for chloride on 3/27-28/02. An initial calibration incorporating a blank and six standards at concentrations ranging from 0.5 mg/L to 50 mg/L was performed on 3/8/02 and documented in the data package. The reported correlation coefficient for the linear regression describing the best-fit curve was acceptable (>0.995) and was verified by the validator. ICV/CCV standards were run at appropriate frequencies during the chloride analysis series and all showed acceptable (QC 85-115%) recoveries relative to reported true values (94.2-102%).

The samples were analyzed for ammonia on 3/25/02; a calibration curve incorporating a blank and seven standards at concentrations ranging from 0.1 mg/L to 8 mg/L was documented for this date. The reported correlation coefficient for the linear regression describing the best-fit curve was acceptable (>0.995) and was verified by the validator. ICV/CCV standards were run at appropriate frequencies during the ammonia analysis series and showed acceptable (QC 85-115%) recoveries relative to reported true values (87.8-111%). However, since only final results are displayed in the raw data documentation (i.e., absorbance values are not provided), these results cannot be verified by the validator.

Calibration is not applicable to the weight measurements used to determine TSS.

III. Blanks

No contamination was reported in any of the method blanks associated with the sample analyses; these results are supported by the raw data available in the data packages.

A field blank (GW09FBCJ) was submitted for analysis with this set of site samples. TSS was detected at 3.4 mg/L in GW09FBCJ. Due to differences in collection techniques, this field blank is applicable only to the ground water samples. All of the ground water sample results for TSS were greater than the action limit for qualification based on blank contamination (five times the blank concentration). Therefore, no sample results were qualified on this basis.

IV. Laboratory Control Samples

Laboratory control samples prepared and analyzed with the samples for all three analysis parameters showed acceptable recoveries (Lab QC 85-115%), ranging from 97.5-108%.

V. Laboratory Duplicate Analysis

Laboratory duplicate analyses were performed for TSS using GW08CJ and SW01CJ. Reproducibility was acceptable for GW08CJ, with a relative percent difference (RPD) of 21.1 percent (QAPP QC ≤25 RPD). Unacceptable variability was observed in the paired TSS results for SW01CJ (43.9 RPD). Results for TSS in all surface water samples (SW01CJ, SW01DPCJ, SW02CJ, SW03CJ, and PW01CJ) were qualified as estimated (J) on this basis.

VI. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD analyses were performed on samples GW08CJ and SW01CJ for ammonia and chloride. Recoveries for ammonia (105-108%) were acceptable and showed excellent reproducibility, with RPDs of 1.9% and 0.5% (QC 80-120% Recovery and ≤20 RPD) in both sets of quality control analyses.

Recoveries for chloride were acceptable in both spiked analyses of GW08CJ (100% and 96.0%) and in the MS analysis of SW01CJ (82.0%). The SW01CJMSD recovery for chloride was unacceptably low (71%). However, chloride was present in the unspiked sample at a concentration almost three times the spike amount added. Accurate recovery would be difficult to obtain under these circumstances, and no action was taken on this basis.

VII. Field Duplicates

Samples GW08CJ and GW08DPCJ were identified as a field duplicate pair. Positive paired results showed good reproducibility (QAPP QC ≤25 RPD) for chloride (11.1 RPD). Ammonia was not detected above the RL in either sample analysis, therefore no quantitative evaluation of precision could be made for this parameter using these data. An unusually high RPD was obtained between the paired results for TSS (172%). Results for TSS in all of the ground water samples (GW08CJ, GW08DPCJ, GW07CJ, GW03CJ, GW04CJ, GW05CJ, GW06CJ, GW02CJ, GW01CJ, and GW09FBCJ) were qualified as estimated (J) on this basis.

Samples SW01CJ and SW01DPCJ were also identified as a field duplicate pair. Positive paired results showed good reproducibility for chloride (3.9 RPD) and TSS (14.0 RPD). Ammonia was not detected above the RL in either sample analysis, therefore no quantitative evaluation of precision could be made for this parameter using these data.

VIII. Sample Results Verification

Results for TSS and chloride were correctly calculated and accurately reported for the samples in this data set based on review of the available raw data. Ammonia results were correctly transcribed from the raw data; since only direct readings of the final results were documented, no verification of the reported concentrations could be made by the validator.

Sample results and RLs were reported to inconsistent significant figures and are not in accordance with recently-defined CompuChem policy, which states that values greater than 10 are reported to three significant figures and values less than 10 are reported to two significant figures. For consistency with historical data generated in support of this project, all results greater than or equal to 10 mg/L were adjusted to reflect three significant figures and values less than 10 mg/L (including RLs) were adjusted to reflect two significant figures. Specifically, the following actions were taken:

- The positive results for ammonia in GW07CJ, GW03CJ, GW04CJ, GW05CJ, GW06CJ, GW02CJ, and PW01CJ were rounded to reflect two significant figures because each value is less than 10 mg/L and was reported to four significant figures by the laboratory.

- The positive results for TSS in GW09FBCJ and SW02CJ were rounded to reflect two significant figures because these values are less than 10 mg/L and were reported to three significant figures by the laboratory.

- RLs for ammonia, chloride, and TSS were adjusted to reflect two significant figures (instead of four, three, and four, respectively, as reported by the laboratory).

The data tables in Attachment A list all individual sample analyte results, whether or not the value or qualifier was changed as a result of the validation effort.

IX. Documentation

Two chain of custody (COC) records were present in both data packages and included all reported samples. The following issues were noted:

- Improper corrections were observed. All corrections to these important legal documents must be made by drawing a single line through the incorrect entry, inserting the correct information, and initialing and dating the change. Obliterations, "write-overs," and undated corrections are not legally defensible.

- Copies of courier airbills were not included in either data package to document the shipment portion of the sample transfers. Airbill numbers, however, were documented on both of the COC records.

- Although this approach is specified by the Quality Assurance Project Plan (QAPP), additional sample volumes provided to facilitate the laboratory's analysis of an MS/MSD pair should not be recorded on the COC as separate samples. Instead, a notation should be made indicating the sample for which extra volume has been provided, with the instruction that this sample be used for the MS/MSD analysis. MS/MSD analyses are laboratory-initiated quality control; if not for the logistical need to provide sufficient volume for the multiple analyses involved, MS/MSD pairs would never be mentioned on COC documentation.

For ammonia, absorbance readings were provided for the IC standards but only direct readings of the final results were documented in the raw data for all runs performed during the sample analysis series. Therefore, no verification of the concentrations reported for these analyses could not be verified by the validator. At the discretion of the data user, the laboratory may be requested to provide this documentation in future data packages prepared in support of this project.

Legible documentation of the ion chromatography analyses for chloride was requested by the validator on 5/10/02. Acceptable copies of the 3/8/02 initial calibration applicable to both data packages were subsequently provided by the laboratory via UPS on 5/14/02, but data for the sample analyses performed on 3/27-28/02 were not provided at that time. Legible copies of the sample data were again requested by the validator on 5/21/02; this documentation was received via UPS on 5/24/02. All of these data were page-numbered by the laboratory and were inserted into the data packages originally provided for validation, replacing the originally-provided pages.

The true value for chloride in the ion chromatography CCV standards was not documented in the data package. At the request of the validator, this value was provided verbally on 5/10/02 (chloride - 25 mg/L) by the laboratory.

Raw data for the series-ending ion chromatography CCV and CCB for chloride were not documented in the data package. This information was requested by the validator on 5/21/02, and again on 6/11/02, but were not received by Trillium at the time this report was prepared. The run log for chloride includes the measured concentrations. From this documentation, the validator could verify that an acceptable recovery for chloride was obtained in the missing CCV and that no chloride contamination was present in the missing CCB. Since the raw data for all other standard analyses supported the run log entries, it was assumed that these values were correct for the series-ending CCV and CCB and no further action was taken by the validator on this basis.

Most of these documentation issues do not directly affect the technical validity of the data generated for these samples, however some of them could be problematic if the data were to be used in litigation.

X. Overall Assessment

Sample results for the three wet chemistry parameters were qualified or corrected as follows based on the validation effort:

- Results for TSS in SW01CJ, SW01DPCJ, SW02CJ, SW03CJ, and PW01CJ were qualified as estimated (J) due to poor reproducibility in the associated laboratory *duplicate analyses*.

- Results for TSS in GW08CJ, GW08DPCJ, GW07CJ, GW03CJ, GW04CJ, GW05CJ, GW06CJ, GW02CJ, GW01CJ, and GW09FBCJ were qualified as estimated (J) due to poor reproducibility in the associated field duplicate analyses.

- The positive results for ammonia in GW07CJ, GW03CJ, GW04CJ, GW05CJ, GW06CJ, GW02CJ, and PW01CJ were rounded to reflect two significant figures because each value is less than 10 mg/L and was reported to four significant figures by the laboratory.

- The positive results for TSS in GW09FBCJ and SW02CJ were rounded to reflect two significant figures because these values are less than 10 mg/L and were reported to three significant figures by the laboratory.

- RLs for ammonia, chloride, and TSS were adjusted to reflect two significant figures (instead of four, three, and four, respectively, as reported by the laboratory).

Documentation issues are discussed in Section IX.

This validation report should be considered part of both data packages for all future distributions of the wet chemistry data.

TRILLIUM INC.

ATTACHMENT A

DATA TABLES

Wet Chemistry - SDG Nos. QQ1067 and QR1067
March 2002 Sample Collections - Marion Bragg Landfill

Marion Bragg Landfill - March 2002 - Wet Chemistry Parameters in GW and SW

Results are in mg/L

Collection Point		MB-1	MB-1D	MB-2	MB-5	MB-6	MB-7	MB-8	MB-9
Sample ID		GW08CJ	GW08DPCJ	GW07CJ	GW03CJ	GW04CJ	GW05CJ	GW06CJ	GW02CJ
Lab Sample No.		QQ1067-8	QQ1067-9	QQ1067-7	QQ1067-3	QQ1067-4	QQ1067-5	QQ1067-6	QQ1067-2
Collection Date.									
	RL								
Ammonia	0.10	0.10 U	0.10 U	8.2	0.62	3.4	7.4	4.5	0.47
Chloride	3.0	21.2	23.7	11.1	17.7	14.5	23.1	23.8	12.5
Total Suspended Solids	1.0	17.0 J	222 J	83.2 J	78.8 J	2620 J	138 J	229 J	146 J

Marion Bragg Landfill - March 2002 - Wet Chemistry Parameters in GW and SW

Results are in mg/L

Collection Point		MB-10	Field Blank	PW-1	SW-1	SW-1D	SW-5	SW-6
Sample ID		GW01CJ	GW09FBCJ	PW01CJ	SW01CJ	SW01DPCJ	SW02CJ	SW03CJ
Lab Sample No.		QQ1067-1	QQ1067-10	QR1067-5	QR1067-1	QR1067-2	QR1067-3	QR1067-4
Collection Date.	RL							
Ammonia	0.10	0.10 U	0.10 U	0.25 U	0.10 U	0.10 U	0.10 U	0.10 U
Chloride	3.0	21.4	2.0 U	16.4	27.6	28.7	29.2	29.2
Total Suspended Solids	1.0	132 J	3.4 J	11.4 J	10.0 J	11.5 J	6.2 J	10.6 J

TRILLIUM INC.

ATTACHMENT B

CLASSICAL CHEMISTRY ANALYSES DATA SHEETS (FORM Is)

Wet Chemistry - SDG Nos. QQ1067 and QR1067
March 2002 Sample Collections - Marion Bragg Landfill

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW08CJ MB-1

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-8

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
Chloride	21.2				3/27/02
TSS	17.0	J			3/22/02
Ammonia	0.10 ~~0.1000~~	U			3/25/02

CAE 6/12/02

Comments:

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW08DPCJ MB-1D

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-9

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
Chloride	23.7				3/27/02
TSS	222	J			3/22/02
Ammonia	0.10 ~~0.1000~~	U			3/25/02

CAE 6/12/02

Comments:

10

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW07CJ MB-2

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-7

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	83.2	J			3/22/02
Chloride	11.1				3/27/02
Ammonia	8.2 ~~8.21~~				3/25/02

CAE 6/12/02

Comments:

8

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW03CJ MB-5

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-3

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	78.8	J			3/22/02
Chloride	17.7				3/27/02
Ammonia	0.02 ~~0.6160~~				3/25/02

CAE 6/12/02

Comments:

4

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW04CJ MB-6

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-4

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	2620	J			3/22/02
Chloride	14.5				3/27/02
Ammonia	3.4 ~~3.394~~				3/25/02

CAE 6/12/02

Comments:

5

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW05CJ MB-7

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-5

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	138	J			3/22/02
Chloride	23.1				3/27/02
Ammonia	7.4 ~~7.420~~				3/25/02

CAE 6/12/02

Comments:

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW06CJ MB-8

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-6

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	229	J			3/22/02
Chloride	23.8				3/27/02
Ammonia	4.5 ~~4.492~~				3/25/02

CAE 6/12/02

Comments:

7

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW02CJ MB-9

ab Name: CompuChem Contract: MARION BRAGG

ab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

DG No.: QQ1067

atrix (soil/water): WATER Lab Sample ID: QQ1067-2

ate Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	146	J			3/22/02
Chloride	12.5				3/27/02
Ammonia	0.47 ~~0.4710~~				3/25/02

CAE 6/12/02

Comments:

3

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW01CJ MB-10

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-1

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	132	J		*	3/22/02
Chloride	21.4				3/27/02
Ammonia	0.10 ~~0.1000~~	U			3/25/02

CAE 6/12/02

Comments:

2

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

GW09FBCJ FB

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QQ1067

Matrix (soil/water): WATER Lab Sample ID: QQ1067-10

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
Chloride	2.0 ~~2.00~~	U		*	3/27/02
TSS	3.4 ~~3.40~~		J		3/22/02
Ammonia	0.10 ~~0.1000~~	U			3/25/02

CAE 6/12/02

Comments:

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

PW01CJ PW-1

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QR1067

Matrix (soil/water): WATER Lab Sample ID: QR1067-5

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	11.4	J			3/22/02
Chloride	16.4				3/27/02
Ammonia	0.25 ~~0.2470~~				3/25/02

CAE 6/12/02

Comments:

2

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

SW01CJ SW-1

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QR1067

Matrix (soil/water): WATER Lab Sample ID: QR1067-1

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
Ammonia	0.10 ~~0.1000~~	U			3/25/02
Chloride	27.6				3/27/02
TSS	10.0	J			3/22/02

CAE 6/12/02

Comments:

3

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

SW01DPCJ SW-1D

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QR1067

Matrix (soil/water): WATER Lab Sample ID: QR1067-2

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	11.5	J			3/22/02
Chloride	28.7				3/27/02
Ammonia	0.10 ~~0.1000~~	U			3/25/02

CAE 6/12/02

Comments:

4

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

SW02CJ SW-5

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/12/02

SDG No.: QR1067

Matrix (soil/water): WATER Lab Sample ID: QR1067-3

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	6.2 ~~6.20~~	J			3/22/02
Chloride	29.2				3/27/02
Ammonia	0.10 ~~0.1000~~	U			3/25/02

CAE 6/12/02

Comments:

5

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

SW03CJ SW-6

Lab Name: CompuChem Contract: MARION BRAGG

Lab Code: LIBRTY Case No.: NRAS No.: CAE 6/18/02

SDG No.: QR1067

Matrix (soil/water): WATER Lab Sample ID: QR1067-4

Date Received: 3/21/02 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	10.6	J			3/22/02
Chloride	29.2				3/27/02
Ammonia	0.10 ~~0.1000~~	U			3/25/02

CAE 6/18/02

Comments:

6

TRILLIUM INC.

ATTACHMENT C

LABORATORY EXPLANATION OF IN-HOUSE PRESERVATION OF AMMONIA SAMPLES

Wet Chemistry - SDG Nos. QQ1067 and QR1067
March 2002 Sample Collections - Marion Bragg Landfill

Carol Erikson

From: "Rodney Raimonde" <rraimonde@compuchemlabs.com>
To: "Carol Erikson" <cerikson@trilliuminc.com>
Sent: Wednesday, June 12, 2002 8:33 AM
Subject: Ammonia

Carol;

The samples received for ammonia on the Marion Bragg site for O & M on March 21st of this year, SDG QQ1067 and QR1067 were preserved by the laboratory prior to analysis. The Receiving group alloquated volume out of the containers received for Chloride and TSS and preserved that volume with H2SO4 to a pH of less than 2. The paperwork that should have followed the samples was not filled out and therefore did not accompany the data packages.

We apologize for any inconvenience this may have caused.

If you have any questions please do not hesitate to contact me.

Rodney A. Raimonde
Project Manager National Accounts
CompuChem
919-379-4018
919-379-4040(fax)

DATA VALIDATION

FOR

MARION BRAGG LANDFILL
MARION, INDIANA

WET CHEMISTRY ANALYSIS DATA
Chemical Oxygen Demand (COD) in Water

CET Report Dated April 4, 2002 (Revised May 30, 2002)
March 2002 Sample Collections

Chemical Analyses Performed by:

Chemical & Environmental Technology, Inc.
Research Triangle Park, North Carolina

FOR

O & M, Inc.
Danville, Indiana

BY

Trillium, Inc.
356 Farragut Crossing Drive
Knoxville, TN 37922
(865) 966-8880

June 12, 2002

92241/CAE/DAS
\MARION\Mar02\cod

TRILLIUM INC.

EXECUTIVE SUMMARY

Validation of the wet chemistry analysis data (chemical oxygen demand [COD]) prepared by Chemical & Environmental Technology, Inc. (CET), under subcontract to CompuChem Environmental, for 14 water samples and one field blank from the Marion Bragg Landfill Site in Marion, Indiana, has been completed by Trillium, Inc. The data were reported by the laboratory in a single data package that had no identification number but was dated April 4, 2002. This data package was received for review on April 9, 2002, with additional or corrected documentation provided on May 29, 2002, and June 6, 2002. The following field samples were reported:

GW08CJ (MB-1)	GW08DPCJ (MB-1D)	GW07CJ (MB-2)
GW03CJ (MB-5)	GW04CJ (MB-6)	GW05CJ (MB-7)
GW06CJ (MB-8)	GW02CJ (MB-9)	GW01CJ (MB-10)
GW09FBCJ (Field Blank)	PW01CJ (PW-1)	SW01CJ (SW-1)
SW01DPCJ (SW-1D)	SW02CJ (SW-5)	SW03CJ (SW-6)

Based on the validation effort, results for COD in all samples except GW06CJ were qualified as estimated (J, UJ).

A brief explanation of the reason for the action taken above may be found in the Overall Assessment (Section IX). Note that if full documentation of the initial calibrations associated with these analyses is ever produced by the laboratory, it may be possible to remove these qualifiers. Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section VIII.

This validation report should be considered part of the data package for all future distributions of the COD data.

INTRODUCTION

Analyses were performed according to EPA's "Chemical Analysis of Water and Wastes" (EPA-600/4-79-020), March 1983, Method 410.4. Since no guidelines specific to the analytical method used are available, the validation was based on the requirements of the referenced procedure, the specifications of the project-specific Quality Assurance Project Plan (QAPP), and best professional judgment. The validation approach was similar to that described in EPA's "National Functional Guidelines for Inorganic Data Review" (EPA-540/R-94/013, February 1994). Results of sample analyses were reported by the laboratory without qualifications.

The data validation process is intended to evaluate data on a technical basis rather than a contract or method compliance basis. An initial assumption is that the data package contains sufficient raw data documentation to facilitate the validation process, comparable to the level of documentation required in a Contract Laboratory Program (CLP) data package.

During the validation process, laboratory data are verified against all available supporting documentation. Based on this review, qualifier codes may be added by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes in accordance with EPA's National Functional Guidelines:

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

R - The data are unusable. (Note: The analyte may or may not be present.)

J - The associated value is an estimated quantity.

UJ - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

These codes are recorded on the client-customized data tables (Attachment A) and the laboratory's Analytical Reports (Attachment B) to qualify the results as appropriate according to the review of the data package.

Two facts should be noted by all data users. First, **the "R" qualifier means that the laboratory-reported value is unusable.** In other words, due to significant quality control problems, the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last

resort. Second, **no analyte concentration is guaranteed to be accurate even if all associated quality control is acceptable.** Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation and Sample Integrity

The water samples were collected on March 19-20, 2002. All COD analyses were conducted well within the 28-day holding time specified by both the referenced method and the QAPP.

An acceptable (4°C ±2°C) cooler temperature on receipt of the samples at CET (2°C) was recorded on the chain of custody (COC) records documenting the shipment of samples from CompuChem to CET. No preservation information was recorded on these COCs by CompuChem, and no documentation of sample pH on receipt at CET was found in the data package. However, the use of sulfuric acid and ice was documented on the field COCs (documenting shipment of the samples from the site to CompuChem) and verification of successful acidification of the COD sample containers was documented on CompuChem's receiving logs, all of which were provided in CompuChem's data packages for the other analysis parameters requested on these samples. Therefore, no action was taken on this basis.

II. Calibrations

The reported COD analyses were performed on 3/22/02 and 3/31/02. Initial calibrations (ICs) performed on 7/30/01 and 8/9/01, respectively, were recorded on the bench sheets for the two analysis dates, but no further information was provided. After repeated requests for the IC raw data and for an explanation as to why two ICs were used when it appeared that the work was done on a single instrument, the laboratory provided a revised data package dated May 30, 2002. The narrative in the revised data package explained that the ICs used for this method are analyst-specific; therefore, since two different analysts performed the sample analyses, two different ICs were referenced. The narrative further explained that two ICs are established by each analyst, one valid up to 150 mg/L ("low") and another valid up to 1500 mg/L ("high"), that both curves are established using linear regressions, and that "All quality control parameters were within limits." No raw data for the ICs were provided.

In the absence of the raw IC data, the validator cannot verify that the linear regressions used to calculate sample results were acceptable (i.e., that they had acceptable correlation coefficients). The available information also does not specify the actual calibration ranges (in particular, the low standard concentrations are not known) and does not indicate how many standards were used to establish the calibration. After repeated incomplete responses from CET, no further attempts were made to obtain these missing data.

Check standards at 150 mg/L and 750 mg/L were run at the start of each COD analysis series, and a check standard at 75 mg/L was run at the end of each analysis series. Acceptable recoveries (QC 85-115%) were reported in all cases (98-110%). However, in the absence of raw data for the associated IC, these standard results could not be verified by the validator.

III. Blanks

A blank was run at the start and end of each COD analysis series. No absorbance response at 600 nanometers was documented for any of these blanks.

One field blank, GW09FBCJ, was submitted with this sample set. COD was not detected above the laboratory-specified reporting limit (RL) of 10 mg/L in the field blank.

IV. Laboratory Control Samples (LCS)

No LCSs were run in association with these samples.

V. Laboratory and Field Duplicate Analyses

A. Laboratory Duplicates

No unspiked duplicate analyses were performed in association with this data set.

B. Field Duplicates

Sample GW08DPCJ was identified as a field duplicate of GW08CJ. COD was not detected above the laboratory-specified RL in either sample, therefore no evaluation of precision could be made using these data.

SW01DPCJ was identified as a field duplicate of SW01CJ. Acceptable reproducibility (18 relative percent difference [RPD]) was demonstrated between these paired samples.

VI. Matrix Spike Analysis

Sample PW01CJ was prepared and analyzed as a matrix spike/matrix spike duplicate (MS/MSD) pair by the laboratory. Acceptable recoveries (107% and 110%) were obtained for both spiked samples (spike amount = 75 mg/L), and excellent reproducibility (based on the measured concentrations) was demonstrated, with an RPD of 2%.

VII. Sample Results Verification

All sample results for COD were accurately transcribed from the bench sheets by the laboratory. However, in the absence of raw data for the associated ICs, the reported sample concentrations could not be verified by the validator. Since the lowest concentration at which

accurate recovery was demonstrated in association with these analyses was 75 mg/L (see Section II), all sample results less than 75 mg/L were qualified as estimated (J, UJ). Note that if full documentation of the initial calibrations associated with these analyses is ever produced by the laboratory, it may be possible to remove these qualifiers.

An RL of 10 mg/L was specified by the laboratory for all non-detected results. Since the calibration ranges established by the ICs were not documented in the data package, the validity of this RL could not be verified by the validator.

All sample results were greater than or equal to 10 mg/L and were reported to two significant figures by the laboratory; this is consistent with the results as found on the bench sheets. Although the historical data generated in support of this project reflect three significant figures for results that are greater than 10 mg/L, the sample results calculations cannot be performed by the validator without the IC raw data and it would not be correct to simply add a decimal place of ".0" to each of the reported values. Therefore, no corrections were made to the reported results with respect to significant figures despite the inconsistency with historical data.

The data tables in Attachment A list all individual sample analyte results, whether or not the value or qualifier was affected by the findings of the validation effort.

VIII. Documentation

Field-initiated COC records were not included in the COD data package, but were available in the CompuChem data packages for the other analysis parameters run on these samples. Two COC records documenting transfer of the samples from CompuChem to CET were present; all samples reported in this data set were listed on these forms. The following issues were noted:

- Preservation of the samples with sulfuric acid and ice was not recorded on the interlaboratory COCs by CompuChem at the time of shipment, and sample pHs were not recorded on the COCs by CET on receipt of the samples.
- No courier information was documented, nor was a copy of the courier airbill (if applicable) included in the data package.
- On both COC records, the dates accompanying the first "Received by" CET signature and the subsequent "Relinquished by" CET signature were incomplete; no year was recorded.
- On the second COC record, no final "Received by" signature was recorded by CET.

No IC raw data were provided in the data package, despite repeated requests for this information by the validator. It may be that the IC data are not routinely printed in hard copy form

by the laboratory when they are generated. However, since the reported sample results cannot be verified in the absence of these data, full documentation must be produced, in manual or print-out form, when validation is required.

In their first response to the validator's request for missing documentation (in particular, IC raw data and page 2 of 2 of the 3/31/02 bench sheet), the laboratory provided a second copy of the original data package on May 29, 2002. In response to a repeated request for the same information, CET provided a replacement data package containing complete bench sheets for both sample analysis dates and an explanation of how their ICs are performed (see Section II and Attachment C). This replacement data package was received for review on June 6, 2002, and was the subject of this validation effort.

As discussed throughout this report, these documentation issues directly affect the technical validity of the analytical data generated. They would very likely be problematic if the data were to be used in litigation.

IX. Overall Assessment

Based on the validation effort, results for COD in all samples except GW06CJ were qualified as estimated (J, UJ) because these results are all less than 75 mg/L, which is the lowest concentration at which accurate recovery was demonstrated in association with these analyses. Note that if full documentation of the initial calibrations associated with these analyses is ever produced by the laboratory, it may be possible to remove these qualifiers.

Documentation issues are discussed in Section VIII.

This validation report should be considered part of the data package for all future distributions of the COD data.

TRILLIUM INC.

ATTACHMENT A

DATA TABLES
COD in Water
March 2002 Sample Collections - Marion Bragg Landfill
CET Report dated April 4, 2002 (Revised May 30, 2002)

TRILLIUM INC.

ATTACHMENT B

ANALYTICAL REPORTS
COD in Water
March 2002 Sample Collections - Marion Bragg Landfill
CET Report dated April 4, 2002 (Revised May 30, 2002)

Marion Bragg Landfill - March 2002 - Chemical Oxygen Demand in Ground Water and Surface Water

Results are in mg/L

Collection Point ==>		MB-1	MB-1D	MB-2	MB-5	MB-6	MB-7	MB-8	MB-9
Sample ID ==>		GW08CJ	GW08DPCJ	GW07CJ	GW03CJ	GW04CJ	GW05CJ	GW06CJ	GW02CJ
Lab Sample No. ==>		195241	195239	195238	195234	195235	195236	195237	195233
Collection Date. ==>		3/20/02	3/20/02	3/20/02	3/20/02	3/20/02	3/20/02	3/20/02	3/20/02
	RL								
COD	10	10 UJ	10 UJ	25 J	60 J	35 J	21 J	84	20 J

Marion Bragg Landfill - March 2002 - Chemical Oxygen Demand in Ground Water and Surface Water

Results are in mg/L

Collection Point ==>		MB-10	Field Blank	PW-1	SW-1	SW-1D	SW-5	SW-6
Sample ID ==========>		GW01CJ	GW09FBCJ	PW01CJ	SW01CJ	SW01DPCJ	SW02CJ	SW03CJ
Lab Sample No. ==>		195232	195240	195246	195242	195243	195244	195245
Collection Date. ==>		3/20/02	3/20/02	3/19/02	3/19/02	3/19/02	3/19/02	3/19/02
	RL							
COD	10	13 J	10 UJ	19 J	12 J	10 J	10 J	12 J

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195241 SAMPLE ID- GW08CJ MB-1 CAE 6/11/02 SAMPLE MATRIX- WW
DATE SAMPLED- 03/20/02 TIME SAMPLED- 1245
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	<10	mg/L	UJ CAE 6/12/02	10

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A.L.N

P.O. Box 12298 • Research Triangle Park, NC 27709
Telephone (919) 467-3090
Shipping: 102-A Woodwinds Industrial Court • Cary, NC 27511
Fax (919) 467-3515

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195239 SAMPLE ID- GW08DPCJ MB-1D
DATE SAMPLED- 03/20/02
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

CAE 6/11/02

SAMPLE MATRIX- WW
TIME SAMPLED- 1245
RECEIVED BY- JCF

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	<10	mg/L	UJ	10

CAE 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A. L. K

P.O. Box 12298 • Research Triangle Park, NC 27709
Telephone (919) 467-3090

Shipping: 102-A Woodwinds Industrial Court • Cary, NC 27511
Fax (919) 467-3515

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195238 SAMPLE ID- GW07CJ MB-2
DATE SAMPLED- 03/20/02
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

SAMPLE MATRIX- WW
TIME SAMPLED- 1145
RECEIVED BY- JCF

cat 6/11/02

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	25	mg/L	J	10

cat 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR _____

P.O. Box 12298 • Research Triangle Park, NC 27709
Telephone (919) 467-3090

Shipping: 102-A Woodwinds Industrial Court • Cary, NC 27511
Fax (919) 467-3515

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195234 SAMPLE ID- GW03CJ MB-5 SAMPLE MATRIX- WW
DATE SAMPLED- 03/20/02 CAE 6/11/02 TIME SAMPLED- 0840
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/22/02	HLH	60	mg/L	J	10

CAE 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A.L.H.

P.O. Box 12298 • Research Triangle Park, NC 27709
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ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195235 SAMPLE ID- GW04CJ MB-6 SAMPLE MATRIX- WW
DATE SAMPLED- 03/20/02 CAE 6/11/02 TIME SAMPLED- 0915
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/22/02	HLH	35	mg/L	J	10

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

CAE 6/12/02

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A. L. H

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ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195236 SAMPLE ID- GW05CJ MB-7
DATE SAMPLED- 03/20/02
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED CAE 6/11/02
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

SAMPLE MATRIX- WW
TIME SAMPLED- 0925
RECEIVED BY- JCF

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	21	mg/L	J	10

CAE 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A. L. H.

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CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195237 SAMPLE ID- GW06CJ MB-8 SAMPLE MATRIX- WW
DATE SAMPLED- 03/20/02 CAE 6/11/02 TIME SAMPLED- 1000
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS	PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	84	mg/L	10

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR _____

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CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195233 SAMPLE ID- GW02CJ MB-9 SAMPLE MATRIX- WW
DATE SAMPLED- 03/20/02 CAE 6/11/02 TIME SAMPLED- 0810
DATE RECEIVED- 03/21/02 SAMPLER--NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/22/02	HLH	20	mg/L	J	10

CAE 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A. L. H

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CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195232 SAMPLE ID- GW01CJ MB-10 CAE 6/11/02 SAMPLE MATRIX- WW
DATE SAMPLED- 03/20/02 TIME SAMPLED- 0740
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/22/02	HLH	13	mg/L	J	10

CAE 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A. L. H.

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ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195240 SAMPLE ID- GW09FBCJ Field Blank CAE 6/11/02 SAMPLE MATRIX- WW
DATE SAMPLED- 03/20/02 TIME SAMPLED- 1045
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	<10	mg/L	UJ	10

CAE 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR R. L. [illegible]

P.O. Box 12298 • Research Triangle Park, NC 27709
Telephone (919) 467-3090
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Fax (919) 467-3515

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195246 SAMPLE ID- PW01CJ PW-1 CAEG 6/11/02 SAMPLE MATRIX- WW
DATE SAMPLED- 03/19/02 TIME SAMPLED- 1530
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	19	mg/L	J	10

CAEG 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A. L. M.

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CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195242 SAMPLE ID- SW01CJ SW-1 SAMPLE MATRIX- WW
DATE SAMPLED- 03/19/02 CAE 6/11/02 TIME SAMPLED- 1415
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	12	mg/L	J	10

CAE 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR 

P.O. Box 12298 • Research Triangle Park, NC 27709 Shipping: 102-A Woodwinds Industrial Court • Cary, NC 27511
Telephone (919) 467-3090 Fax (919) 467-3515

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195243 SAMPLE ID- SW01DPCJ SW-1D CAE 6/11/02 SAMPLE MATRIX- WW
DATE SAMPLED- 03/19/02 TIME SAMPLED- 1415
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS		PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	10	mg/L	J	10

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations. CAE 6/12/02

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A. L. H.

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ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195244 SAMPLE ID- SW02CJ SW-5 SAMPLE MATRIX- WW
DATE SAMPLED- 03/19/02 CAE 6/11/02 TIME SAMPLED- 1450
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS	PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	10 J	mg/L	10

CAE 6/12/02

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

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CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 04/04/02

SAMPLE NUMBER- 195245 SAMPLE ID- SW03CJ SW-6 CAE 6/11/02 SAMPLE MATRIX- WW
DATE SAMPLED- 03/19/02 TIME SAMPLED- 1455
DATE RECEIVED- 03/21/02 SAMPLER- NOT SPECIFIED RECEIVED BY- JCF
TIME RECEIVED- 1615 DELIVERED BY- CHRIS BRAND

Page 1 of 1 PROJECT NAME : MARION BRAGG

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT	UNITS	PQL
CHEMICAL OXYGEN DEMAND	EPA 410.4	03/31/02	LEB	12	mg/L J	10

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations. CAE 6/12/02

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR A.L.M

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Fax (919) 467-3515

TRILLIUM INC.

ATTACHMENT C

REVISED LABORATORY NARRATIVE
COD in Water
March 2002 Sample Collections - Marion Bragg Landfill
CET Report dated April 4, 2002 (Revised May 30, 2002)

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

Environmental Analytical Services

A. Link Thrower
Chemical and Environmental Technology (CET)
P.O. Box 12298
Research Triangle Park, NC 27709

Diane Byrd
Compuchem
501 Madison Ave.
Cary, NC 27513

May 30, 2002

Dear Diane:

Enclosed is the report for 15 water samples submitted to Chemical and Environmental Technology on March 21, 2002 for COD analysis. The samples were collected on March 19 and 20, 2002 and were analyzed within the required holding time.

The samples were analyzed in two batches, March 22, 2002 by Heidi Huston and March 31, 2002 by Laurie Barnes. Each analyst uses an analyst specific calibration curve, one for low range samples, up to 150 mg/l, and one for high range samples up to 1500 mg/l. The calibration curves are in linear regression format, $y = mx + b$, where x = COD concentration in the sample, y = Absorbance at 600 nm, m = slope, and b = intercept. All measurements are made on Thermospectronic Genesys 20 Spectrometer #1. All quality control parameters were within limits.

Sincerely,

A. Link Thrower
Laboratory Director - CET